A STUDY TO EVALUATE THE EFFECTIVENESS OF THERAPEUTIC BACK MASSAGE ON QUALITY OF SLEEP AMONG ORTHOPEDIC SURGICAL PATIENTS IN SELECTED HOSPITALS AT COIMBATORE

COIMBATORE

A DISSERTATION SUBMITTED TO THE TAMILNADU DR. M.G.R. MEDICAL UNIVERSITY, CHENNAI, IN PARTIAL FULFILMENT OF REQUIREMENT FOR THE DEGREE OF

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BY

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DEDICATION

****

"I dedicate this book to

God almighty who blessed me to finish this work successfully."

I dedicate this book to my lovable Parents

Mr. PETER LEVIN PAUL

&

Mrs. SUBETHA RAJA THANGAM,

those who made my life purposeful and meaningful

I dedicate this book to my beloved sister

Ms .JANE PRAISY

who gave me a marvelous emotional support

*****

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ABSTRACT

INTRODUCTION: Orthopedic Surgical Patients have sleep disturbances. In this context, complementary therapy like Therapeutic Back Massage has its own significance, thus enhancing the scope of nursing. OBJECTIVE: To evaluate the effectiveness of Therapeutic Back Massage on Quality Of Sleep. DESIGN: A quantitative approach using experimental pre and post test design with control group. PARTICIPANTS: 60 Orthopedic surgical patients with sleep disturbances using non-probability purposive sampling techniques from Senthil & Rex hospitals. INTERVENTION: Therapeutic Back Massage 20 minutes once in evening for 5 consecutive days. TOOLS: Standardized self administered Groningen sleep quality scale to assess the quality of sleep. RESULTS: Analysis among Experimental group and Control group by using independent 't'test found significant values 15.7 and 3.3 respectively at $p<0.05$ level. CONCLUSION: Therapeutic Back Massage is effective on quality of sleep among orthopedic surgical patients.

Key words: Therapeutic Back Massage, Quality of sleep, Orthopedic Surgical Patients.

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CHAPTER I

INTRODUCTION

"Sleep is the golden chain that ties health and our body together"

-Thomas Dekkar.

Sleep and rest are basic human needs essential to all individuals' physical and psychological well being. About one third of our life spent in sleeping. The purpose of sleep is a mystery, however it is necessary to health and a sense of well being.

Sleep is the natural periodic state of rest for mind and body with closed eyes characterized by partial or complete loss of consciousness. Loss of consciousness leads to decreased response to external stimuli and decreased body movements.

Two systems in the brain stem, the Reticular Activating System (RAS) and Bulbar Synchronizing Region are believed to work together to control the cyclic nature of sleep. Stimulation of these centers induces sleep. People experience cyclical rhythm as part of their everyday life. The most familiar rhythm is the 24 hour, day night cycle known as the diurnal or circadian rhythms.

Sleep –Wake is a dual process that has two distinct states. It involves a sequence of physiological states maintained by highly integrated central nervous system activity that is associated with changes in peripheral nervous, endocrine,

cardiovascular, respiratory and muscular systems. Each sequence is identified by specific physiological responses and patterns of brain activity. The control and regulation of sleep-wake state depends on the interrelationship between two cerebral mechanisms that intermittently activate and suppress the brain's higher centers to control sleep and wakefulness. The neurons in the brain stem maintain a state of wakefulness, whereas the neurons in the parasympathetic control centers maintain a state of sleep.

The persons fall asleep, close eyes, assume relaxed position and have the room dark, quiet, and at a comfortable temperature. Stimuli to the Reticular Activating System (RAS) in the Upper Brain Stem decline. Gradually the Bulbar Synchronizing Region (BSR) takes over causing Sleep.

A person's need for rest and sleep changes throughout life. An early adult generally needs less sleep than a middle aged or older adult. A client with a chronic disease requires more rest than a healthy person of same age. Depending on the duration of total sleep, two extremes of normal sleeping patterns have been described. 'Long sleepers' regularly and habitually sleep more than 9 hours/night and this pattern of sleep does not cause symptoms or dysfunction. 'Short sleepers' are persons those regularly and habitually sleep for less than 6 hours and this pattern of sleep do not cause any symptoms or dysfunction.

The depth of sleep is not constant throughout the sleeping period. It varies in different stages of sleep. This average daily amount of sleep also varies considerably among adults. Most adults in the age group of 20-50 have average 6-8 ½ hours of

sleep. However 5% to 10% of this age group is sleeping more than 6 hours without difficulty.

Insomnia is the inability to obtain adequate amount or quality of sleep. Insomnia is a common symptom affecting millions of people that may be caused by many conditions, diseases or circumstances.

The causes of insomnia are medical conditions, pain, stress, fear, anxiety, menstruation, mental disorders, shift work, circadian rhythm disorders, use of psychoactive drugs or stimulants, medications, herbs, caffeine, nicotine, cocaine etc. The causes of insomnia among hospitalized patients after Orthopedic Surgery are pain, stress, anxiety.

Majority of Orthopedic surgical patients suffer from insomnia due to pain after surgical procedure. Sleep deprivation after surgery affect the healing and recovery of body systems. Therefore reducing patients' pain is one of the main medical goals which are often executed by giving them narcotic drugs; but these drugs usually have side effects that make them less effective. So they must be used less or be replaced by other methods. Another category for reducing pain includes non pharmacological treatment. These treatments may completely not heal patient's pain but it can be a help along with other treatments.

There are various complementary and alternative therapies that improve the quality of sleep such as massage, prayer, music therapy, aroma therapy, progressive muscle relaxation etc. Among these massage therapy is the most economic procedure,

easily applicable, and has no side effects. Selley's stress theory explained the effectiveness of massage as an integrated physiological response originating in the hypothalamus that leads to generalized decrease in the arousal of the central nervous system.

Therapeutic back massage is the scientific manipulation of the soft tissues of the body for the purpose of normalizing those tissues and consists of various techniques that include applying fixed or movable pressure, holding and/or causing movements of or to the body.

Massage causes physiological changes in your body through the relaxation response, which is an involuntary predictable response of the nervous system to massage techniques and touch. Massages produce the relaxation response by increase level of serotonin, which is a chemical in the body that positively affects emotions and thoughts. Mechanical responses, which are physical effects, occur in the body when pressure is applied to the soft tissues. The physical manipulation in massage has two major physical effects: increase in blood and lymph circulation, relaxation and normalization of the soft tissue (muscle, connective tissue, tendons, ligaments), which releases nerves and deeper connective tissues. Together these responses can produce physical and emotional benefits.

Therapeutic back massage produces relaxation by decreasing the tension in the muscles. The promotion of relaxation and relief from anxiety work by reducing muscle spasm and in turn relieves pain thereby improve the quality of sleep.

Smith, Starlings, Mariner and Burrall (1999) stated that massage is physically, emotionally, mentally very relaxing among orthopedic surgical patients and they slept much better without the use of pain killers and sleep medication on the days they received massage.

Need for the Study

Acute trauma care centre in USA (2006) reports that orthopedic problem is a major worldwide public health problem. It is one of the leading causes of death and disability in both industrialized and developing countries. Globally orthopedic injury is the seventh leading cause of death.

In the first 5 decades of life trauma accounts for more deaths than any other diseases. The people in the age group between 20 and 60 are more vulnerable to accidents. Major trauma outcomes study in 1997 reports that 48.6% had one or more musculo skeletal injuries.

Department of orthopedic surgery in Philadelphia (2007) reports that the incidence of orthopedic surgery was 2,634 among 1,00,000 population out of which 71.5% of patients required orthopedic consultation. The most mechanism of injury was motorcycle and automobile accidents.

According to North Central Virginia Trauma centre (2000) 72 individual diagnosed with orthopedic injuries in 2000, gradually it is increasing to 234 individuals in 2006. 1234 patients have orthopedic injuries after 8 years. 79% were

male, 95% were white. It was concluded that orthopedic injuries are increasing day by day.

According to WHO (2002) reports that in India prevalence of orthopedic injury is estimated to be 544 orthopedic patients per 1,00,000 populations. International classification of disease (2003) reports that among 31 countries with a total population of 197,214,69 persons 1,422,046 had orthopedic problems that corresponding to a crude incidence rate of 118.8 per 1,00,000 person in 2007. Regarding orthopedic procedures, among 28 countries, it is estimated that 1,198,148 patients had orthopedic surgery that corresponding to a crude rate of 104.3 per 100,000 people in 2010.

Beydon (2004) conducted a descriptive study on quality of sleep among 116 orthopedic surgical patients by using self administered questionnaire. The study revealed that 116 orthopedic patients have sleep disturbance.

According to 56th annual meeting of the orthopedic research society in 2012 reports, in India the incidence of total hip replacement is 1450 per 959,000 population. The average rate was 131 procedures per 1,00,000 population. Among them 57.7% of the patients were women and 32.9% of patients were under the age group of 60 years.

Rosen Bergs (1996) conducted a study in Thailand to assess sleep disturbances among post operative orthopedic surgical patients by using sleep quality index. The study revealed that orthopedic surgical patients have sleep disturbance.

Field T. Hernandes (2007) conducted an experimental study to compare the effectiveness of massage therapy versus relaxation therapy on sleep by adapting purposive sampling technique among 64 orthopedic surgical patients. The study revealed that massage therapy group was experiencing less pain, depression, anxiety and sleep disturbances than relaxation group. The study concluded that massage therapy is effective in reducing pain, depression, anxiety and sleep disturbances.

The researcher, while working in orthopedic department have assessed that most of the orthopedic surgical patients were experiencing sleep disturbance after surgery. The patients enquired with the health team members regarding therapies to treat sleep disturbance. So the researcher was interested to select this problem for the dissertation.

Statement of the Problem

A Study To Evaluate The Effectiveness Of Therapeutic Back Massage On Quality Of Sleep Among Orthopedic Surgical Patients In Selected Hospitals At Coimbatore.

Objectives

The Objectives of the study were

- To assess the quality of sleep among experimental and control group.
- To evaluate the effectiveness of therapeutic back massage on quality of sleep among experimental group.

- To determine the association between post test quality of sleep among orthopedic surgical patients and their selected demographic variables in experimental and control group.

Hypotheses

H_1 : There will be a significant difference between the mean pre and post test Quality of sleep among orthopedic surgical patients in experimental group.

H_2 : There will be a significant association between the quality of sleep among orthopedic surgical patients with their selected demographic variables.

Operational Definitions

Effectiveness:

Effectiveness refers to the outcome of therapeutic back massage on quality of sleep among orthopedic surgical patients.

Therapeutic Back Massage:

Therapeutic back massage is the scientific manipulation of the soft tissues of the back by means of applying effleurage, petrissage, tapotement, friction techniques for 20 minutes once in the evening for 5 consecutive days.

Quality of Sleep:

Sleep can be defined as a normal state of altered consciousness during which the body rests. The quality of sleep is measured by Standardized Groningen sleep quality scale.

Orthopedic Surgical Patients:

It refers to the patients who had undergone orthopaedic surgeries and on 2^{nd} to 5^{th} post operative day.

Assumptions

- Most of the orthopedic surgical patients may have sleep disturbance.
- Therapeutic back massage may improve the quality of sleep.
- Therapeutic back massage will have no adverse effects.
- Therapeutic back massage is easy to apply.
- Therapeutic back massage enhances the sense of well being among orthopedic surgical patients.

Delimitations

- The study is delimited to Orthopedic Surgical Patients in selected hospital.
- The data collection is delimited to a period of 6 weeks.

Projected Outcomes

- The study will help the nurses to assess the quality of sleep among orthopedic surgical patients by using Groningen sleep quality scale.
- The findings of the study will help the nurses to practicing of Therapeutic Back Massage to improve the quality of sleep
- The findings of the study will help the nurses to motivate the caregivers to practicing of Therapeutic Back Massage to improve the quality of sleep
- The study findings will help to improve the quality of sleep among orthopedic surgical patients.

CHAPTER II

REVIEW OF LITERATURE

Review of literature is an important step in the process of any research project. It helps the investigator to analyze what is already known about the topic. It is the method of inquiry used in earlier work. In the present study an extensive literature survey has been made to collect the facts and findings over the years to select work.

This chapter deals with the information collected with relevance to the present study from published and unpublished materials. These publications were the foundation to carry out the research work. Highly extensive review of literature pertaining to research topic was done to collect maximum information for laying foundation of the study.

Review of literature was organized as follows:

- Studies related to quality of sleep among orthopedic surgical patients
- Studies related to therapeutic back massage.
- Studies related to effectiveness of therapeutic back massage on quality of sleep among orthopedic surgical patients.

Studies Related To Quality of Sleep among Orthopedic Surgical Patients

Mokhlesi.B, Hovd.MD, Vekhter.B, Arora.VM, Chung.F, Meltzer.DO.,(2013) conducted a cohort study to assess the sleep disorders among 1,058,710 hospitalized patients. The study revealed that sleep disorder was increasing in orthopedic surgeries

than other groups. The study concluded that orthopedic surgical patients have sleep disturbances.

Alizahrai, Jaskarndip, Chahal, Danstojimirovic, Emil H.Schinitsh, Albert Yec, William krarmel (2013) conducted a descriptive study on quality of sleep and quality of life among orthopedic surgical patients by using sleep quality index . The study revealed that the patient have sleep disturbances. The study concluded that orthopedic surgical patient's quality of sleep is poor after surgery.

Goodfellow.L.M.,(2008) conducted a descriptive study to assess the surgical pain, distress, anxiety, sleep among orthopedic surgical patients. The study revealed that anxiety, distress, duration of hospital stay, post operative complication, sleep disturbance were increasing followed by orthopedic surgery.

Foster.KA., Listein (2004) conducted a descriptive study in New Zealand on quality of life and quality of sleep among 150 orthopedic surgical patients by using quality of life index, sleep quality scale. The study revealed that orthopedic surgical patients have sleep disturbances. The study concluded that quality of life and quality of sleep is poor among orthopedic surgical patients.

Cherkin.DC (2001) conducted a descriptive study in China on quality of sleep among 262 orthopedic surgical patients by using sleep quality scale. The study revealed that 260 patients have sleep disturbances. The study concluded that the quality of sleep is poor after orthopedic surgical procedure.

Onozawa.K (2001) conducted a descriptive study in Thailand to describe the quality of sleep and pain among 34 orthopedic surgical patients by using sleep quality index. The study revealed that orthopedic surgical patients have more pain and sleep disturbance.

Degan.M, Fabris (2000) conducted an analytical study in USA to evaluate the sleep quality among 40 post operative clients. The study revealed that the persons sleep pattern is altered after surgery. The study concluded that the patient have the sleep disturbances after surgical intervention.

Preyde (2000) conducted a comparative study in USA to describe the quality of sleep among 4 surgical groups by using Pittsburgh sleep quality scale. The study revealed that sleep disturbance is more in orthopedic surgical patients than other surgeries. The study concluded that the orthopedic surgical patients have sleep disturbance and poor quality of sleep.

Sunshine (1996) conducted a descriptive study in Northern Island on quality of sleep, pain, anxiety among thirty orthopedic surgical patients by using sleep quality index, pain scale, and anxiety scale. The study revealed that orthopedic patients have sleep disturbance and high pain scores. The study concluded that orthopedic surgical patients have more sleep disturbances.

Studies Related to Therapeutic Back Massage

Listing.M, Reissharue.A, KrohnM.(2012) conducted an experimental study in USA to evaluate the effects of massage therapy on physical discomfort and mood

disturbances among 86 women with breast cancer. The study revealed that physical discomfort and mood disturbances were lower in the experimental group than the control group. The study concluded that massage therapy is effective in reducing the physical discomfort, fatigue and improving mood disturbances.

Sherman.K.J, Cherkin.D.C, Hawkers.R.J (2009) conducted a randomized trial in USA to evaluate therapeutic massage on chronic neck pain among sixty four patients by using neck disability index. The study revealed that there was a significant improvement on the neck pain. The study concluded that therapeutic massage is effective in treatment of neck pain.

Lawler (2006) conducted an experimental study in Iran to evaluate the effectiveness of therapeutic back massage on back pain among 78 orthopedic patients by using randomized control group design by using pain scale. The study revealed that therapeutic back massage group experienced less pain. The study concluded that therapeutic back massage reduces the pain severity.

Siev Nee (2003) conducted a comparative study on pain massage therapy versus relaxation therapy on pain among 50 orthopedic surgical patients by using randomized control group design by using pain score. The study revealed that therapeutic massage reduces the pain severity than the relaxation group. The study concluded that therapeutic massage is effective in reducing pain.

Diegofield.T (2002) conducted an experimental study in USA to evaluate the effectiveness of massage therapy on depression, functionality and body muscle

strength and range of motion among twenty critical care patients by using depression, anxiety score. The study revealed that the massage therapy decreased the anxiety and depression level. The study also concluded that massage therapy increase the muscle strength and range of motion.

Quin.C., Chandler.C.,Moraksha (2002) conducted an experimental study in USA on effectiveness of Massage therapy on chronic, non migraine head ache among 18-55 yrs patients with chronic head ache. The study revealed that there is significant reduction in the head ache after massage therapy in experimental group. The study also concluded that massage therapy is effective in reducing chronic, non migraine head ache.

Beth Muelle. RMT (2001) conducted an experimental study in USA to evaluate the effectiveness of massage therapy on pain, depression, anxiety and sleep among 46 health care providers. The study revealed that massage therapy is effective in promoting sleep and reducing the pain, depression, anxiety.

Schanberg Saul (1997) conducted an experimental study in India to evaluate the effectiveness of massage therapy on chronic fatigue syndrome among 46 patients by using randomized control group design by using fatigue scale. The study revealed that the massage therapy decrease the fatigue symptom. The study also concluded that massage therapy effective in reducing fatigue.

Studies Related to Effectiveness of Therapeutic Back Massage on Quality of Sleep among Orthopedic Surgical Patients

Richard KC., (2012) conducted an experimental study on effectiveness of back massage and relaxation intervention on sleep among 69 critically ill patients by adapting randomized control group design by using sleep efficiency index. The study revealed that back massage group slept one hour more than the relaxation group. The study concluded that massage therapy improves the quality of sleep.

Digeom., Delgado., (2011) conducted an experimental study in Europe on effectiveness of massage therapy in decreasing pain and a greater increase in grip strength as well as lower anxiety and depression among 46 adults with pain by adapting convenient sampling techniques by using anxiety scale, grip scale and sleep disturbance scale. The study revealed that the patients experienced lower level of anxiety, depression and improved sleep after massage therapy. The study concluded that massage therapy is effective in improving the grip strength and sleep.

Castro-Sanchez.A.M., Mataran-Penarrocha.G.A., Granero-Molina.J., Aguilera-Manrique., Quesada-Rubio.J.M., Moreno-Lorenzo.C., (2011) conducted an experimental study in South America to evaluate the effectiveness of massage therapy on pain, anxiety, depression, quality of sleep and quality of life among 74 adults by adapting randomized controlled clinical trial by using sleep quality index. The study revealed that the pain, the quality of sleep and quality of life improved in experimental group after one month intervention. The study concluded that massage therapy is effective in improving the quality of sleep and quality of life.

Jane.S.W, Chen.S.L., Wilkie.D.J., Lin,Y.C., Foreman.S.W., Beaton.R.D., Fan.J.Y., Lin.Y.H., Liao(2011) conducted a randomized clinical trial in Taiwan to evaluate the effects of massage therapy on pain mood status , relaxation and sleep among 72 patients with metastatic bone pain. The study revealed that mood status, pain intensity, sleep quality, relaxation were sustained after 16-18hrs of massage therapy than the control group. The study concluded that the massage therapy is effective in improving the mood status, relaxation, sleep and pain management.

Adams.R., White.B., Beckett.C.(2010) conducted an experimental study in Northern Arizona to evaluate the effectiveness of massage therapy on pain management and sleep among 53 clients from medical and surgical, obstetrical unit by adapting convenient sampling techniques by using visual analogue scale(0-10). The study revealed that the mean post test level of pain was less than the mean pre test level of pain. The study concluded that massage therapy is not only significant reduction in pain levels but also promote relaxation, sleep, emotions, recovery and healing process.

Field.T., Hernandes, Reif.M., Diego.M., Fraser.M.(2007) conducted an experimental study in USA to evaluate the effectiveness of massage therapy versus relaxation therapy on chronic low back pain, depression, anxiety, sleep disturbances, range of motion among thirty adults with low back pain by adapting randomized between group design by using structured questionnaires, range of motion. The study revealed that the massage therapy reported less pain, depression, anxiety and sleep disturbance than the relaxation group. The study concluded that massage therapy is

effective in reducing low back pain, depression, anxiety improving the quality of sleep.

Hernandez-Reif.M., Field.T.,Krasnegor.J.,Theakston.H.(2007) conducted an experimental study in USA to evaluate the effectiveness of massage therapy versus relaxation therapy on chronic low back pain and range of motion among 24 adults with low back pain by adapting randomized between group designs by using structured questionnaires. The study revealed that massage therapy group reported less pain, depression, anxiety, and improved sleep. The study concluded the massage therapy is effective in reducing low back pain stress hormones and thereby improving sleep.

Maryam Eghbali., Hedayatollah LeelahganI., Nasrollah Alimohammadi., Reza DaryabeigI., Zahra Ghasempour (2007) conducted an experimental study in Iran on effectiveness on massage therapy of pain severity and sleep quality in 60 arthroscopic knee surgery patients by adapting randomized control group design by using structured questionnaire. The study revealed a significant difference between mean score of pain severity before and after massage in intervention group and this difference wasn't meaningful in control group. The study concluded that the therapeutic back massage is effective in reducing pain and improving the sleep quality.

Hasson.D., Arnetz.B., Jelveus.L (2004) conducted a randomized clinical trial in Japan to evaluate the effects of massage therapy compared to relaxation tape recordings on diffuse long-term pain and sleep among 129 patients with long term

musculo skeletal pain. The study revealed significant improvement in the outcomes self rated health, mental energy and muscle pain controlled in experimental group than the relaxation Group. The study concluded that the therapeutic massage is effective in reducing the pain.

Field, Tiffany, Diego, Miguel, Cullen, Christy, Hernandez, Reif, Maria, Sunshine, William, Douglas, Steven (2001) conducted an experimental study in Denmark to evaluate massage therapy and progressive muscle relaxation techniques on sleep, substance P, and pain among 24 Males. The study revealed that the massage therapy group reported increasing sleeping hours, decrease substance P levels as compared to the relaxation group. The study also concluded that massage therapy is effective in reducing pain and improving sleep.

Preyde(2000) conducted a randomized controlled trial in USA on effectiveness of massage therapy on sub acute low back pain and quality of sleep among 100 orthopedic surgical patients by using Rolland disability questionnaire, the MCGILL pain scale ,the state anxiety index, and modified Schober test. The study revealed that 63% of subjects in the comprehensive massage therapy group reported no pain compared with 27% of soft tissue manipulation group 14%of the remedial exercise group and 0% of the laser therapy group. The study concluded that massage therapy is effective in reducing the low back pain and promoting sleep.

CONCEPTUAL FRAME WORK

MODIFIED KATHARINE KOLCABA THEORY(1995)

According to Nancy Burns (2001) conceptual frame work is a set of inter related concepts that symbolically represent and convey a mental image of a phenomenon.

The present study was based on modified Katharine Kolcaba comfort theory (1995). In Kolcaba's theory of comfort, recipients of comfort measures are known in variety of ways such as patients, students, prisoners, workers, older adults, communities and institution. The inter relationship of health care needs, comfort measures, intervening variable, comfort, health seeking behavior, institutional integrity provide basis for her theory. Her goal was to help the patient retain his own vitality by meeting the health needs through comfort measures.

Health care needs

Katharine Kolcaba defines that health care needs as needs for comfort arising from stressful health care situations, that cannot be met by recipients support systems. These needs include physical, psycho spiritual, social and environmental needs .These needs are monitored by verbal and non verbal reports, patho physiological parameter.

Present study considered physical needs of sleep that has arised out of pain due to orthopedic surgery.

Comfort Measures

Katharine Kolcaba defines comfort measures as nursing interventions designed to address specific comfort needs of recipients including physiological, social, financial, psychological, spiritual, environmental and physical intervention.

Present study considers the physical intervention of therapeutic back massage for 20 minutes once in evening for 5 consecutive days to improve the quality of sleep among orthopedic surgical patients.

Intervening Variables

According to Katharine Kolcaba, intervening variables are interacting forces that influence recipient's perception of total comfort. These consists of variable such as past experience, age, attitude, emotional state, support system, prognosis, finance and totality of aliments in recipients experience.

In this present study, intervening variables are age, duration of illness, regular sleeping hours, bread winner of the family, monthly income that may influence the quality of sleep among orthopedic surgical patients.

Comfort

Katharine Kolcaba defines Comfort as the state that is experienced by recipients of comfort measures.

The three types of comfort are

Relief- The state of a recipient who has had a specific need met.

Ease - The state of calm or contentment

Transcendence – The state in which individual rises above his or her problems or pain.

In this present study the orthopedic surgical patient experienced comfort or relief (i.e.) the quality of sleep is improved. It was assessed by standardized Groningen sleep quality scale.

Health seeking behavior

According to Katharine Kolcaba health seeking behavior is the outcomes related to the pursuit of health defined by the recipients in consultation with nurse.

In this present study the caregivers consulted with the researcher regarding the effects of therapeutic back massage and acquired adequate knowledge about it's practice.

Institutional Integrity

Katharine Kolcaba provides technical definition for Institutional integrity that includes corporations, communities, school, hospital, churches, reformatories that possess the qualities or states of being complete, whole, sound, upright, appealing, honest and sincere.

In this present study the institutional integrity is the Senthil and Rex orthopedic hospitals that possesses all qualities.

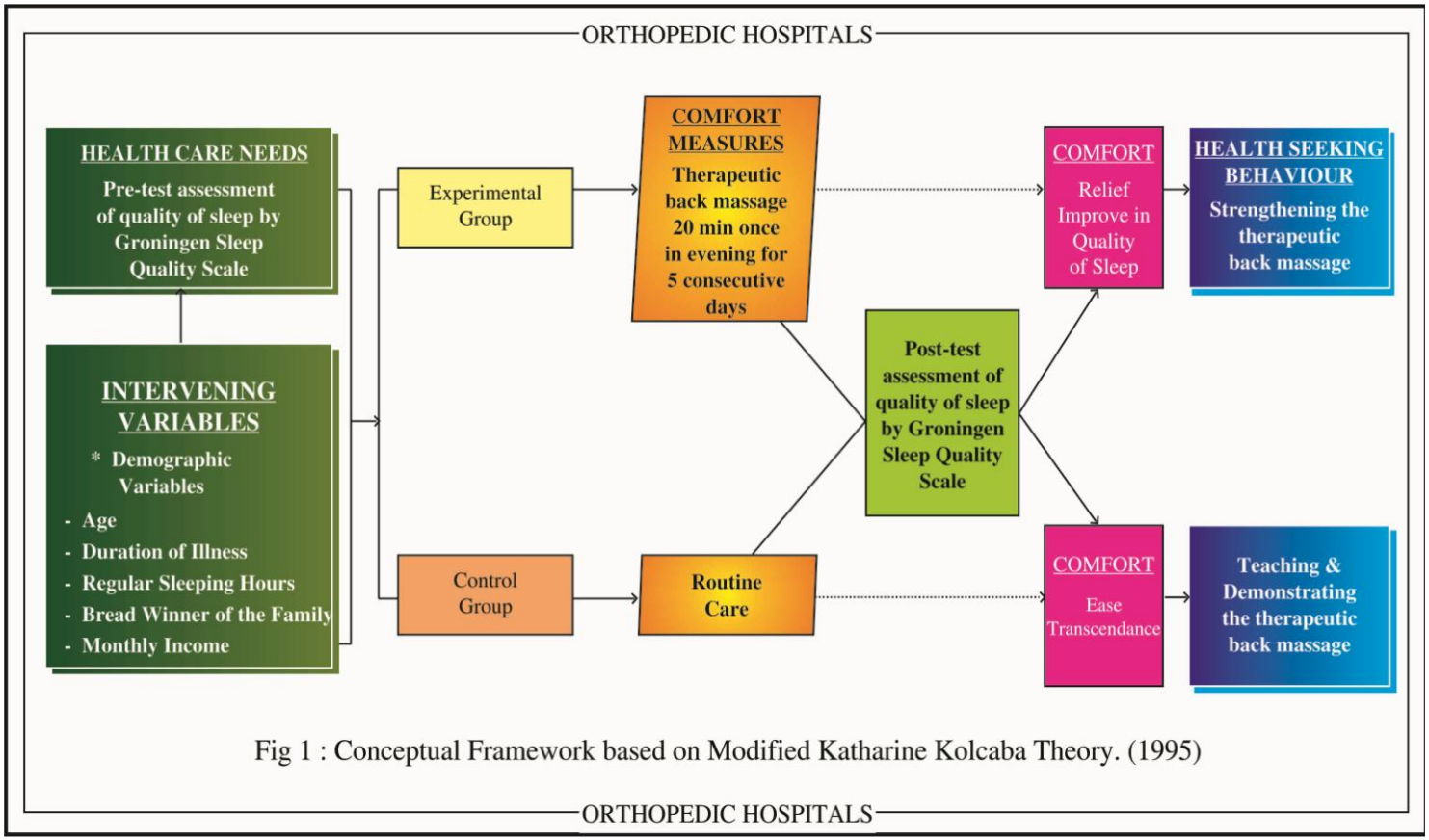

Fig 1 : Conceptual Framework based on Modified Katharine Kolcaba Theory. (1995)

CHAPTER III

METHODOLOGY

According to Polit and Hungler (2011) research methodology refers to investigating the ways of obtaining, organizing and analyzing data. The present chapter consists of research approach, research design, setting of the study, study population and criteria for a sample selection, sampling technique, development and description of the tool, pilot study, scoring procedure for data collection and procedure for data analysis.

Research Approach

Polit and Hungler (2011) defined the research approach as "a general set of orderly, disciplined procedures used to acquire information". The present study considered a quantitative approach to determine the effectiveness of therapeutic back massage on quality of sleep among orthopedic surgical patients.

Research Design

According to Nancy Burns (2011) "The research design is the blue print for conducting the study that control over factors that could interfere with the validity of the findings".

A quasi experimental pre test, post test design with control group was chosen for this study without randomization. Standard sleep quality scale was used to assess the quality of sleep before and after therapeutic back massage.

Group	Pre test	Intervention					Post- Test
	D1	D1	D2	D3	D4	D5	D6
Experimental	O1	X	X	X	X	X	O3
Control	O2	_	_	_	_	_	O4

The diagrammatic representation of research design is given below

Key

O1, O2 = Pre test assessment of quality of sleep in experimental and control group respectively.

X = Intervention on therapeutic back massage 20 minutes once a day for 5 consecutive days.

O3, O4 = post–test assessment of quality of sleep in experimental and control group respectively.

O3-O1
O4-O2 } = Effectiveness of Therapeutic Back Massage on Quality of Sleep.
O4-O3

Variables

A variable is an attribute of a person or object that varies, that is, takes on different values. Variables are measurable characteristics of a concept and consist of logical group of attributes.

Dependent Variable

Dependent variable is that which is hypothesized to depend on (or) been caused by another variable. In this study the dependent variable is the quality of sleep among orthopedic surgical patients.

Independent Variables

Independent variable is manipulated and it intends to cause a change in the dependent variables. In this study the independent variable is therapeutic back massage.

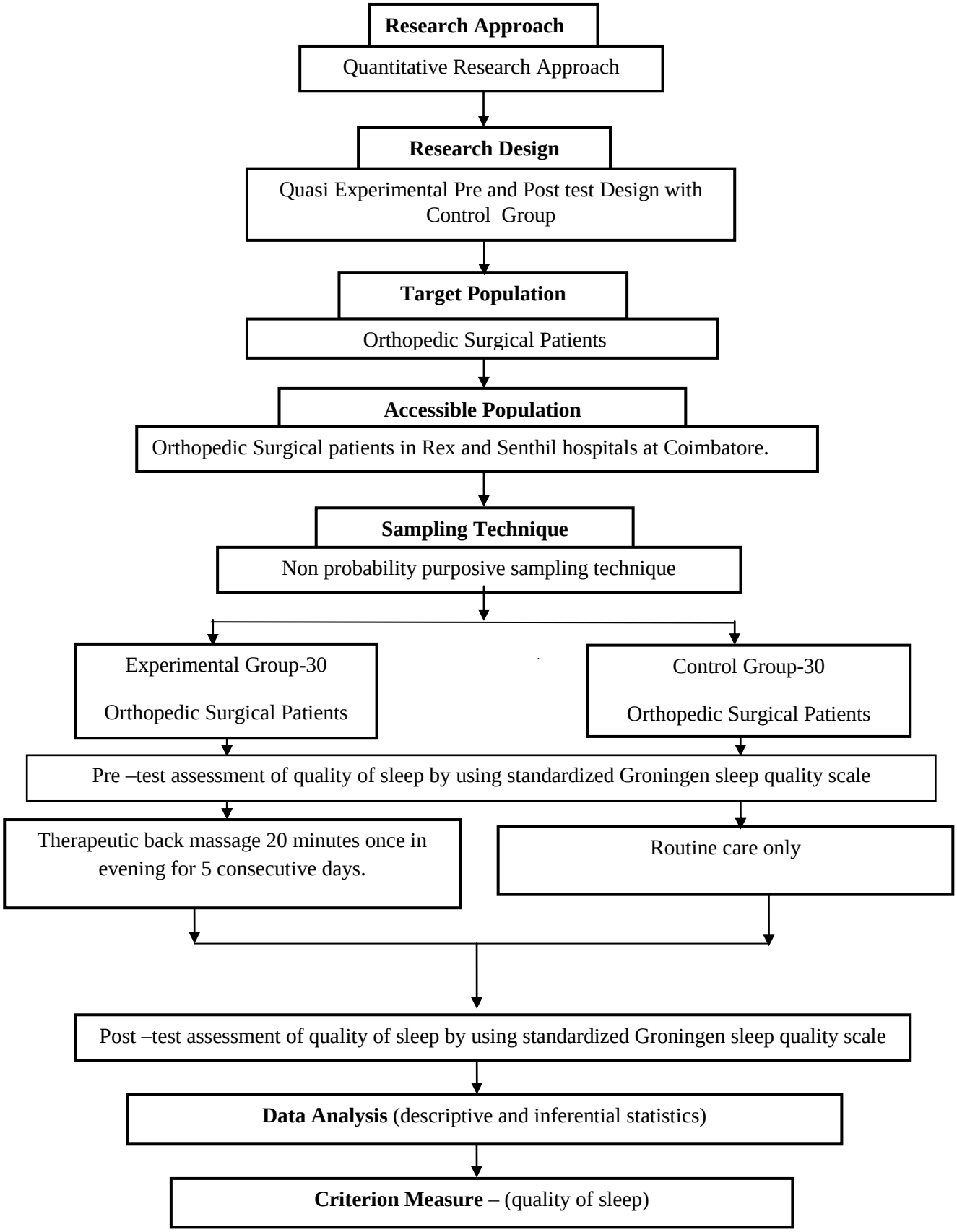

Figure 2: The Schematic Representation of Research Methodology

Setting of the Study

Polit and Hungler (2004) stated that "the physical location and conditions in which data collection has taken place in a study is the setting of the study". The study was conducted in Rex and Senthil Hospitals at Coimbatore. The hospitals are located at the centre of the city which has access to all facilities. Rex Hospital is 500 bedded hospitals with 6 orthopedic operation theatres. Senthil Hospital is 250 bedded hospital. Samples for experimental group was selected from Senthil hospital that has 2 orthopedic operation theatres, one general ward, one post operative ward, one ICU, one physiotherapy department and 4 outpatient departments. These hospitals are equipped with all the facilities. Samples for control group were selected from Rex hospital that has 7 operation theatres, two general ward, two post operative ward, two ICU, one physiotherapy department and 4 outpatient department. The distance between these hospitals is 300 meters.

Population

According to Polit and Hungler (2005) "a population is the entire aggregation of cases in which researcher is interested". Target population for this study was orthopedic surgical clients with sleep disturbance. The accessible population of the study was orthopedic patients with sleep disturbances from Senthil Hospital and Rex Hospital.

Sample

According to Polit and Hungler (2005) "the sample consists of a subset of population selected to participate in a research study. The sample selected for the

present study was 60 orthopedic patients among them, 30 patients from Senthil Hospital for experimental group and 30 patients from Rex Hospital for control group.

Criteria for Selection of Sample

Inclusion Criteria

- Orthopedic surgical patients between the age group of 20-60 yrs.
- Patients who are between 2^{nd} and 5^{th} post operative day.
- Patients who can write and read Tamil.
- Patients who are willing to participate in the study.

Exclusion Criteria

- Patients with the diagnosis of eczema, malignant tumours of skin,open wounds, bed sore, skin lesions, surgery of back.
- Patients with neurological deficit and deliberated illness.

Sampling Technique

According to Polit and Hungler (2005) “sampling technique is the process of selecting a portion of the population to represent the entire population”. The sample for the study was selected by non-probability purposive sampling technique.

Development of the Tool

Treece and Treece (1986) emphasized that “the instrument selected in research should as far as possible be the vehicle that would best obtain data for drawing conclusion”.

The research tool was developed in English after an extensive review of literature and experts opinion. It was translated into Tamil by language experts. The standardized Groningen sleep quality scale was used as the instrument to measure the quality of sleep.

Description of the Tool

The tool consists of 2 parts

Part I : It consists of demographic variables that includes

A) Family profile: It consists of age, gender, type of family, educational status, monthly income.

B) Personal habits: Sleeping hours per day.

Part II:

Standardized Groningen sleep quality scale to assess the quality of sleep among orthopedic surgical patients.

Scoring Procedure

Part II: Standardized Groningen sleep quality scale.

It consisted of 15 items for assessing sleep quality. Each correct answer carried score '1' and wrong answer carried score '0'. So the maximum and minimum marks for each item were '1' and '0' respectively.

First question is neutral and carried no marks.

Direct scoring was given to questions: 2,3,4,5,6,7,9,11,13,14,15

Reverse scoring was given to questions : 8, 10, 12

So the total maximum possible score was '14'.

The total minimum possible score was ‘0’

The total score was classified as follows

0-5 - Good sleep.

6-9 - Fair sleep

10-14 - Poor sleep

Therapeutic Back Massage Intervention

Samples were explained regarding the sequence of the procedure and the required articles were assembled at the bedside. Vital signs were assessed and client was provided with prone or sitting position. Back was exposed and was cleansed with soap and warm water and was dried. Talcum powder was spread to both the hands. The massage with effleurage stroking with both the hands from the gluteal region towards the shoulder and vise versa with circular strokes was continued for 10 minutes. Then the technique of petrissage (kneading the muscles of the body to attain deeper massage penetration) by using the thumbs and the knuckles of the fingers to squeeze them from the gluteal region towards the shoulder was continued for 3 minutes. Then the technique of tapotment was continued with the use of fist of cupped hands from the gluteal region towards the shoulder and vice versa for 2 minutes. Then the technique of friction using the palms of hands from the gluteal region towards the shoulder was continued for 5 minutes. Patient was comfortably positioned and vital signs were reassessed after the intervention.

Validity

Content Validity

According to Nancy Burns (2011) “the validity of an instrument is the determination of the extent to which an instrument actually reflects the abstract construct that is being examined”.

Validity of the tool was obtained from five nursing experts and two medical experts. The suggestions were taken into consideration and corrections were made accordingly. The tool was found to be valid.

Reliability

According to Polit and Hungler (2004) “reliability of an instrument is the consistency with which it measures the target attribute”.

In this present study the reliability was done by test - retest method. The reliability score of the instrument was r = 0.73. This level indicates that the instrument is highly reliable.

Pilot Study

Polit and Beck (2011) denote that “pilot study is a small scale version or trial run done in preparation for the main study”.

Pilot study was conducted in Reshmika and Nataraj Hospitals at Coimbatore. A total number of 6 samples were selected for this study. Purpose of this study was to

find the feasibility of the study. It was revealed that the study was feasible and could be preceded with the main study.

Data Collection Procedure

Data collection procedure was done for a period of 6 weeks at Rex and Senthil Hospital at Coimbatore. Prior permission was obtained from the Medical Director of the hospitals. The samples were informed by the researcher about the nature and purpose of the study. Informed written consent was obtained from the samples.

On day 1, the demographic variables and the standardized Groningen Sleep Quality Scale was administered through structured self administered questionnaire for pre-test assessment of quality of sleep among orthopedic surgical patients both in experimental and control group. It took around 15 minutes for each sample. On Day 1,2,3,4 and 5 therapeutic back massages for a duration of 20 minutes once in evening was given to the experimental group alone. On day 6, post-test assessment of quality of sleep among orthopedic surgical patients was done in both experimental and control group by using the same standardized Groningen Sleep Quality Scale.

Plan for Data Analysis

The demographic variables were analyzed by using descriptive measures (frequency and percentage). The quality of sleep was analyzed by using descriptive statistics (mean, standard deviation). The effect of therapeutic back massage on quality of sleep was analyzed by using paired‘t’ test and independent‘t’ test. Association between the quality of sleep and the selected demographic variables were analyzed by using chi square test.

Protection of Human Rights

The study was conducted after the approval of research committee of the college and hospitals. The nature and purpose of the study was explained to the health care personnel involved. The informed written consent was obtained from the study participants. The anonymity of the samples were maintained throughout the study. Therapeutic Back Massage was demonstrated and encouraged among control group after the post test to overcome the ethical issue.

CHAPTER IV

DATA ANALYSIS AND INTERPRETATION

This chapter deals with the analysis and interpretations of the collected data from 60 orthopedic surgical patients to assess the therapeutic back massage on quality of sleep. The purpose of analysis was to reduce the data to an intangible and interpretable form. So that the relation of the research problem can be studied and tested.

Polit and Beck (2003) has noted data analysis as "the systematic organization, synthesized research data and testing of research hypothesis using those data".

The analysis and interpretation of this study was based on the data collected through self administered questionnaire among 60 orthopedic surgical patients. The study findings are presented in sections as follows:

Section I	:	Data on demographic variables of orthopedic surgical patients.
Section II	:	Data on quality of sleep among orthopedic surgical patients.
Section III	:	Data on effectiveness of therapeutic back massage on quality of sleep among orthopedic surgical patients.
Section IV	:	Data on association between quality of sleep among orthopedic surgical patients with their selected demographic variables

SECTION I : DATA ON DEMOGRAPHIC VARIABLES OF ORTHOPEDIC SURGICAL PATIENTS

Table: 1

Frequency and Percentage Distribution of Demographic Variables among Orthopedic Surgical Patients in Experimental and Control Group.

N=60

S.No.	Demographic Variables	Experimental Group		Control Group		Total	
		n	%	n	%	N	%
1	Age (in years)						
	a. 20-30	5	16.7	3	10	8	13.3
	b. 31-40	6	20	9	30	15	25
	c. 41-50	10	33.3	10	33.3	20	33.3
	d. 51-60	9	30	8	26.7	17	28.4
2	Gender						
	a. Male	12	40	14	46.7	26	43.3
	b. Female	18	60	16	53.3	34	56.7
3	Education						
	a. No Formal Education	4	13.3	4	13.3	8	13.3
	b. Primary Education	10	33.3	6	20	16	26.7
	c. Secondary Education	5	16.7	4	13.3	9	15
	d. Higher Secondary Education	6	20	6	20	12	20
	e. Collegiate/Equivalent	5	16.7	10	33.3	15	25
4	Marital Status						
	a. Unmarried	3	10	2	6.7	5	8.3
	b. Married	21	17	21	70	42	70
	c. Widow/Widower	3	10	4	13.3	7	11.7
	d. Separated	3	10	3	10	6	10

(Contd.,)

S.No.	Demographic Variables	Experimental Group		Control Group		Total	
		n	%	n	%	N	%
5	Occupation						
	a. Government Employee	4	13.3	9	30	13	21.7
	b. Private Employee	11	36.7	5	16.7	16	26.7
	c. Self Employee	11	36.7	9	30	20	33.3
	d. Unemployed	4	13.3	7	23.3	11	18.3
6	Monthly Income						
	a. ≤ Rs 5000/-	3	10	1	3.3	4	6.7
	b. Rs5001/- to Rs10,000/-	14	46.7	10	33.3	24	40
	c. Rs10,001/- to Rs15,000/-	8	26.7	9	30	17	28.3
	d. > Rs 15,000/-	5	16.7	10	33.3	15	25
7	Area of Living						
	a. Rural	20	66.7	10	33.3	30	50
	b. Urban	10	33.3	20	66.7	30	50
8	Type of Family						
	a. Nuclear Family	17	56.7	13	43.3	30	50
	b. Joint Family	9	30	10	33.3	19	31.7
	c. Extended Family	4	13.3	7	23.3	11	18.3
9	Regular Sleeping Hours						
	a. Above 8 hrs	18	60	15	50	33	55
	b. 5-7 hrs	10	33.3	8	26.7	18	30
	c. Below 5 hrs	2	6.7	7	23.3	9	15

(Contd.,)

S.No.	Demographic Variables	Experimental group		Control group		Total	
		n	%	n	%	N	%
10	Bread winner of the Family						
	a) Patient	14	46.7	9	30	23	38.3
	b) Husband (or) Wife	10	33.3	10	33.3	20	33.3
	c) Son (or) Daughter	5	16.7	8	26.7	13	21.7
	d) More than one person	1	3.3	3	10	4	6.7
11	Type of surgery						
	a) Total Hip Replacement	10	33.3	10	33.3	20	33.3
	b) Total Knee Replacement	11	36.7	11	36.7	22	36.7
	c) Arthroplasty	9	30	9	30	18	30

Table 1 reveals that regarding age, majority of the orthopedic surgical patients belonged to 41-50 years 20 (33.3%) out of them, 10 (33.3%) belongs to experimental group, and 10 (33.3%) belonged to control group. 8 (13.3%) patients were included in the age group of 20-30 years, among them 5 (16.7%) and 3 (10%) belonged to experimental and control group respectively. 15(25%) belonged to the age group of 31-40 years among them 6 (20%) and 9(30%) belonged to experimental and control group. 17 (28.3%) were included in the age group of 51-60 years among them 9 (30%) and 8 (26.7%) belonged to experimental and control group.

Regarding sex, 26 (43.3%) were males and 34 (56.7%) were females Among males 12 (40%) were included in experimental group and 14 (46.7%) were included in control group. Among females 18 (60%) belonged experimental group and 16 (53.3%) belonged to control group.

Regarding education 8 (13.3%) have no formal education out of them. 4 (13.3%) and 4 (13.3%) belonged to experimental and control group respectively. 16 (26.7%) have primary education 10 (33.3%) and 6 (20%) belonged to experimental and control group respectively. 9 (15%) have secondary education among them 5 (16.7%) and 4 (13.3%) belonged to experimental and control group respectively.

Regarding marital status 5 (18.3%) were unmarried among them 3(10%) and 2 (6.7%) belonged to experimental and control group. 42 (10%) were married among them 21 (70%) and 21 (70%) belonged to experimental and control group. 7 (11.7%) were widowed among 3 (10%) and 4 (13.3%) and 9 (30%) belonged to experimental and control group. 10 (26.7%) were private employee among them 11 (36.7%) and 5 (16.7%) belonged to experimental and control group. 20 (33.3%) were self employer among them 11 (36.7%) and 9 (30%) belonged to experimental and control group. 11 (18.3%) were unemployed among them 4 (13.3%) and 7 (23.3%) belonged to experimental and control group.

Regarding occupation 13 (21.7%) were government employee among them 4 (13.3%) and 9(30%)belonged to experimental and control group. 16(26.7%) were private employee among them 11(36.7%) and 5(16.7%) belonged to experimental and control group. 20(33.3%) were self employee among them 11(36.7%) and 9(30%) belonged to experimental and control group. 11(18.3%) were un employee among them4(13.3%) and7(23.3%) belonged to experimental and control group.

Regarding monthly income 4 (6.7%) were included in the category of < Rs. 5000 among them 3 (10%) and 1 (3.3%) belonged to experimental and control group.

24 (40%) were included in the category of Rs.5001-Rs.10000 among them 14 (46.7%) and 10 (33.3%) belonged to experimental and control group respectively. 17 (28.3%) were involved in the category of Rs. 10001 – Rs. 15000 among them 8 (26.7%) and 9 (30%) belonged to experimental and control group respectively. 15 (25%) were involved in the category of > Rs. 15,000 out of them 5 (16.7%) and 10 (33.3%) belonged to experimental group and control group.

Regarding area of living 30 (50%) were living in rural area among them 20 (66.7%) and 10 (33.3%) belonged to experimental and control group. 30 (50%) were living in urban area. Among them 10 (33.3%) and 20 (66.7%) belonged to experimental and control group.

Regarding type of family 30 (50%) were included in nuclear family among them 17 (56.7%) and 13 (43.3%) belonged to experimental and control group. 19 (34.7%) were included in joint family among them 9 (30%) and 10 (33.3%) belonged to experimental and control group. 11 (18.3%) were included in extended family among them 4 (13.3%) and 7 (23.3%) belonged to experimental and control group.

Regarding regular sleeping hours 33 (55%) had sleep above 8 hours among them 18 (60%) and 15 (50%) belonged to experimental and control group. 18 (30%) had sleep 5-7 hours among them 10 (33.3%) and 8 (26.7%) belonged to experimental and control group. 9 (15%) had below 6 hours among them 2 (6.7%) and 7 (23.3%) belonged to experimental and control group.

Regarding bread winner of family 23 (38.3%) were patients among them 14 (46.7%) and 9 (30%) belonged to experimental and control group 20 (33.3%) were husband or wife among them 10 (33.3%) and 10 (33.3%) belonged to experimental and control group. 13 (21.7%) were son or daughter among them 5 (16.7%) and 8 (26.7%) belonged to experimental and control group 4 (6.7%) were more than one person among them 1 (3.3%) and 3 (10%) belonged to experimental and control group.

Regarding type of surgery 20 (33.3%0 were underwent 7 hours among them 10 (33.3%) and 10 (33.3%) belonged to experimental and control group. 22 (36.7%) were underwent 7 hour among them 11 (36.7%) and 11 (36.7%) belonged to experimental and control group. 18 (30%) were underwent arthroscopy among them 9 (30%) and 9 (30%) belonged to experimental and control group.

It was inferred that, majority of orthopedic surgical patients belonged to the age group of 41-50 years, were females, had primary education, married, were self employee, earned a monthly income of Rs.5001/- to Rs.10000/-, were living in rural and urban areas equally, living in nuclear family, had regular sleeping pattern of above 8 hours, were bread winner of the family, underwent total knee replacement surgery.

SECTION II : DATA ON QUALITY OF SLEEP AMONG ORTHOPEDIC SURGICAL PATIENTS

TABLE 2.1

Frequency and Percentage Distribution On Quality of Sleep among Orthopedic Surgical Patients in Experimental Group.

N=30

S.No.	Quality of Sleep	Experimental Group			
		Pre-test		Post-test	
		n	%	n	%
1	GOOD	0	0	27	90
2	FAIR	3	10	2	6.7
3	POOR	27	90	1	3.3

Table 2.1 shows that among experimental group majority 27 (90%) had poor quality of sleep and 3 (10%) had fair quality of sleep during pre-test. Majority 27 (90%) experienced good quality of sleep, 2 (6.7%) had fair quality of sleep and 1(3.3%) experienced poor quality of sleep during post-test.

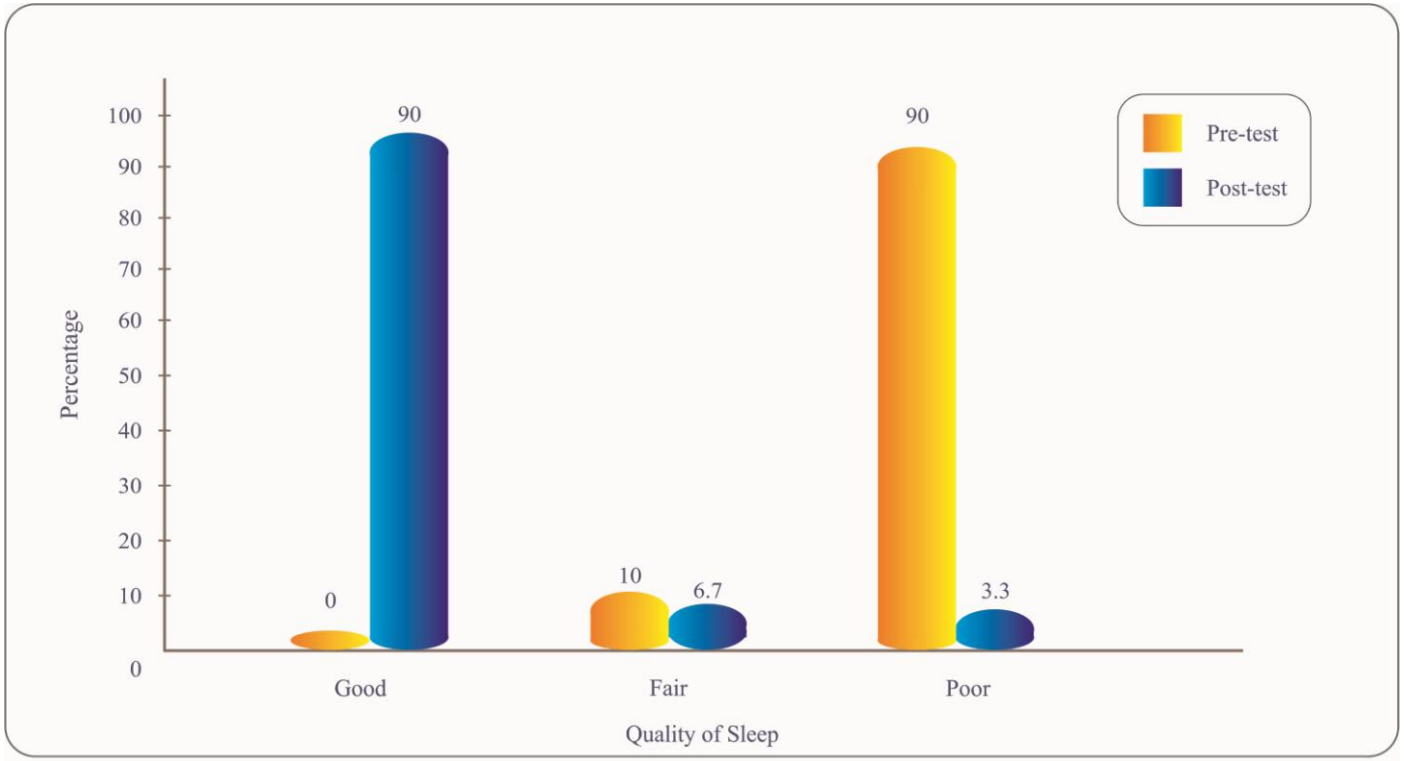

Fig 3 : Quality of Sleep among Orthopedic Surgical Patients in Experimental Group.

TABLE 2.2

Frequency and Percentage Distribution on Quality of Sleep among Orthopedic Surgical Patients in Control Group.

N=30

S.NO	Quality of Sleep	Control Group			
		Pre-test		Post-test	
		n	%	n	%
1	GOOD	0	0	3	10
2	FAIR	2	6.7	10	33.3
3	POOR	28	93.3	17	56.7

Table 2.2 revealed that among control group majority 28 (93.3%) experienced poor quality of sleep, 2 (6.7%) had fair quality of sleep during pre-test. Majority 17 (56.7%) experienced poor quality of sleep, 10 (33.3%) had fair quality of sleep, and 3(10%) had good quality of sleep during post-test.

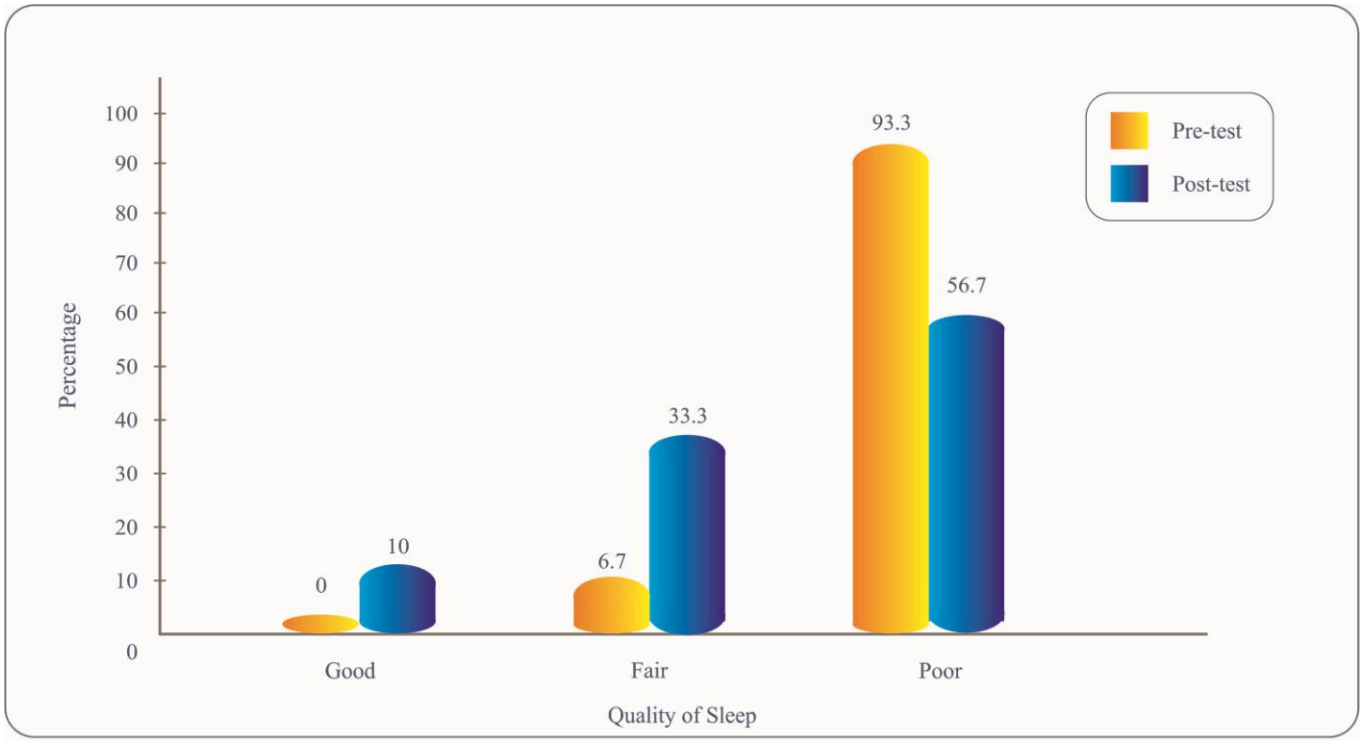

Fig 4 : Quality of Sleep among Orthopedic Surgical Patients in Control Group.

SECTION III : DATA ON EFFECTIVENESS OF THERAPEUTIC BACK MASSAGE ON QUALITY OF SLEEP AMONG ORTHOPEDIC SURGICAL PATIENTS.

Table 3.1

Mean, Standard Deviation, Mean Difference and 't' Value on Pre test & Post test Quality of sleep among Orthopedic Surgical Patients in Experimental Group.

N=30

S.NO.	Variables	Mean	Standard Deviation	Mean Difference	't' Value
1	Experimental Group				
	Pre-test	11.4	1.5	8.8	15.7*
	Post-test	2.6	2.5		

* - Significant at p<0.05 level

Table 3.1 reveals that among experimental group, the mean pre-test score 11.4 with standard deviation 1.5 was more than the mean post-test score 2.6 with standard deviation of 2.5. The calculated mean difference was 8.8 and the obtained 't' value 15.7 was highly significant at $p < 0.05$ level.

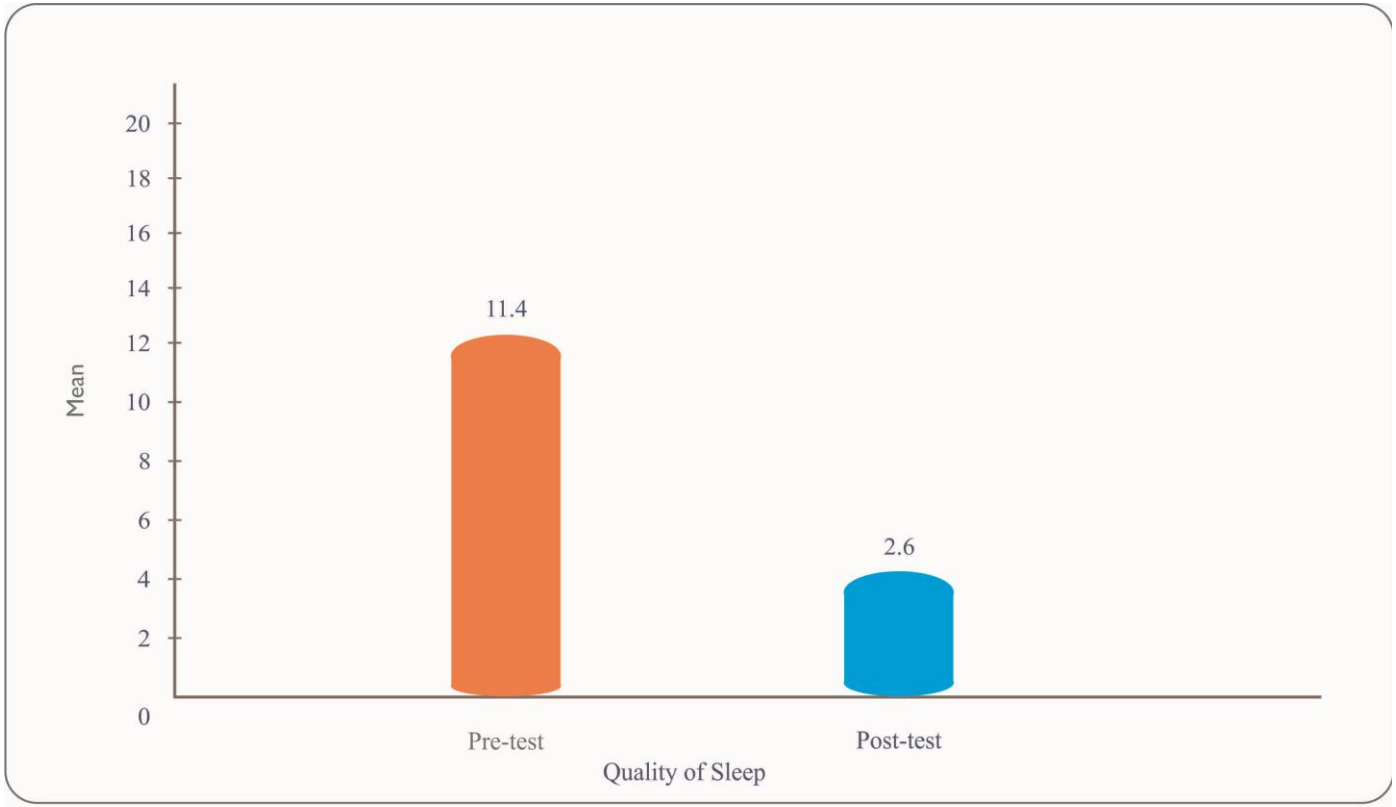

Fig 5 : Mean Pre and Post-test Value on

Quality of Sleep among Orthopaedic Surgical Patients in Experimental Group.

Table 3.2

Mean, Standard Deviation, Mean Difference and 't' Value on Pre test & Post test Quality of Sleep among Orthopedic Surgical Patients in Control Group.

N=30

S.NO	Variables	Mean	Standard Deviation	Mean Difference	't' Value
1	Control Group				
	Pre-test	11.7	1.7		
				1.9	3.3*
	Post-test	9.8	3.4		

* Significant at $p<0.05$ level

Table 3.2 reveals that in control group, the mean pre-test score 11.7 with standard deviation 1.7 was more than the mean post test score 9.8 with standard deviation 3.4. The calculated mean difference was 1.9 and the obtained't' value 3.3 was also significant at $p<0.05$ level.

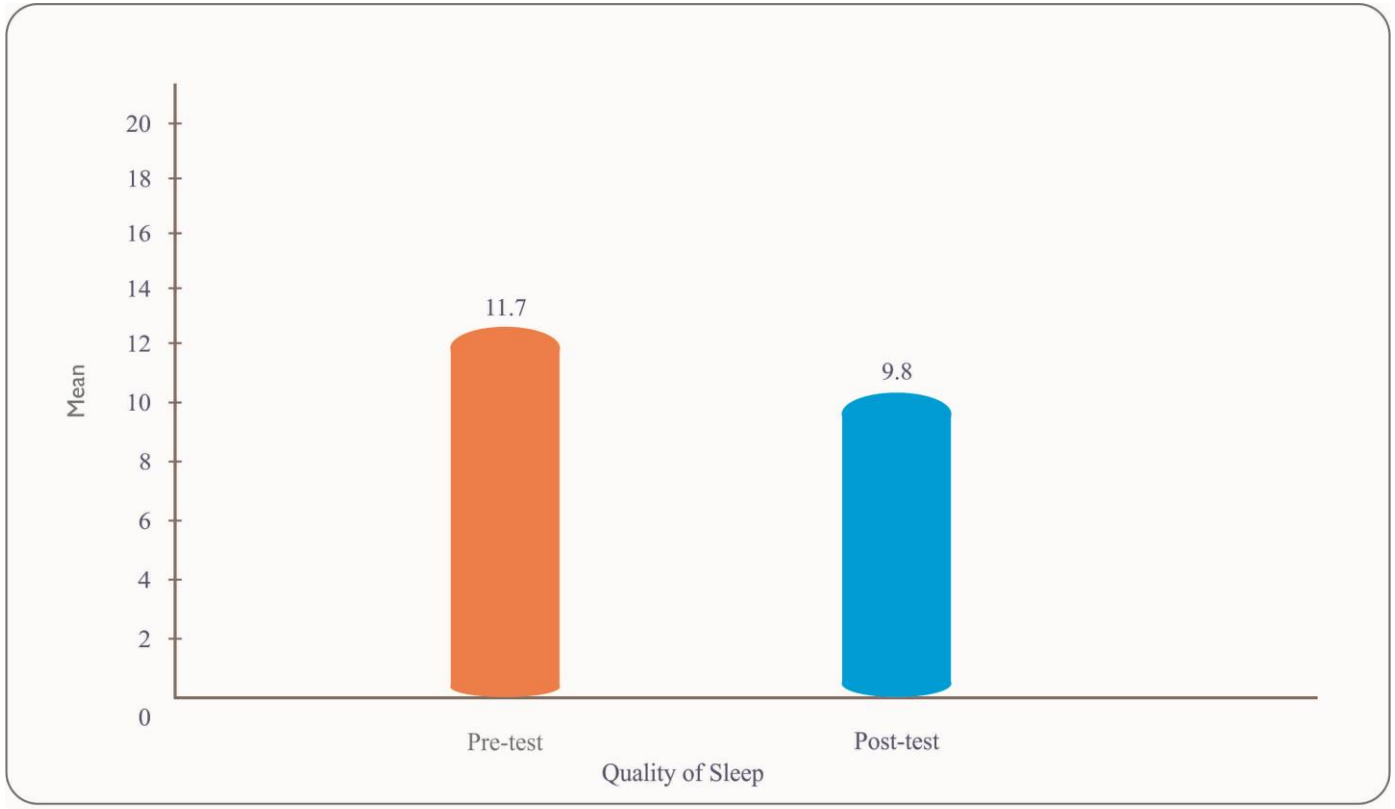

Fig 6 : Mean Pre and Post-test Value on

Quality of Sleep among Orthopaedic Surgical Patients in Control Group.

Table 3.3

Mean, Standard Deviation, Mean Difference And 't' Value On Post Test Quality Of Sleep Among Orthopedic Surgical Patients In Experimental And Control Group

N=60

S.No.	Variables	Mean	Standard Deviation	Mean Difference	't' Value
1	Experimental Group	2.6	2.5	7.2	16.7*
2	Control Group	9.8	3.4		

* - Significant at p< 0.05 level

Table 3.3 reveals that among experimental group the mean post-test score was 2.6 with standard deviation of 2.5. It also reveals that among control group the mean post test score was 9.8 with standard deviation 3.4. The mean difference7.2 with obtained 't' value 16.7 was significant at $p < 0.05$ level.

Hence the stated hypothesis was accepted. It is inferred with therapeutic back massage is effective in improving the quality of sleep among orthopedic surgical patients.

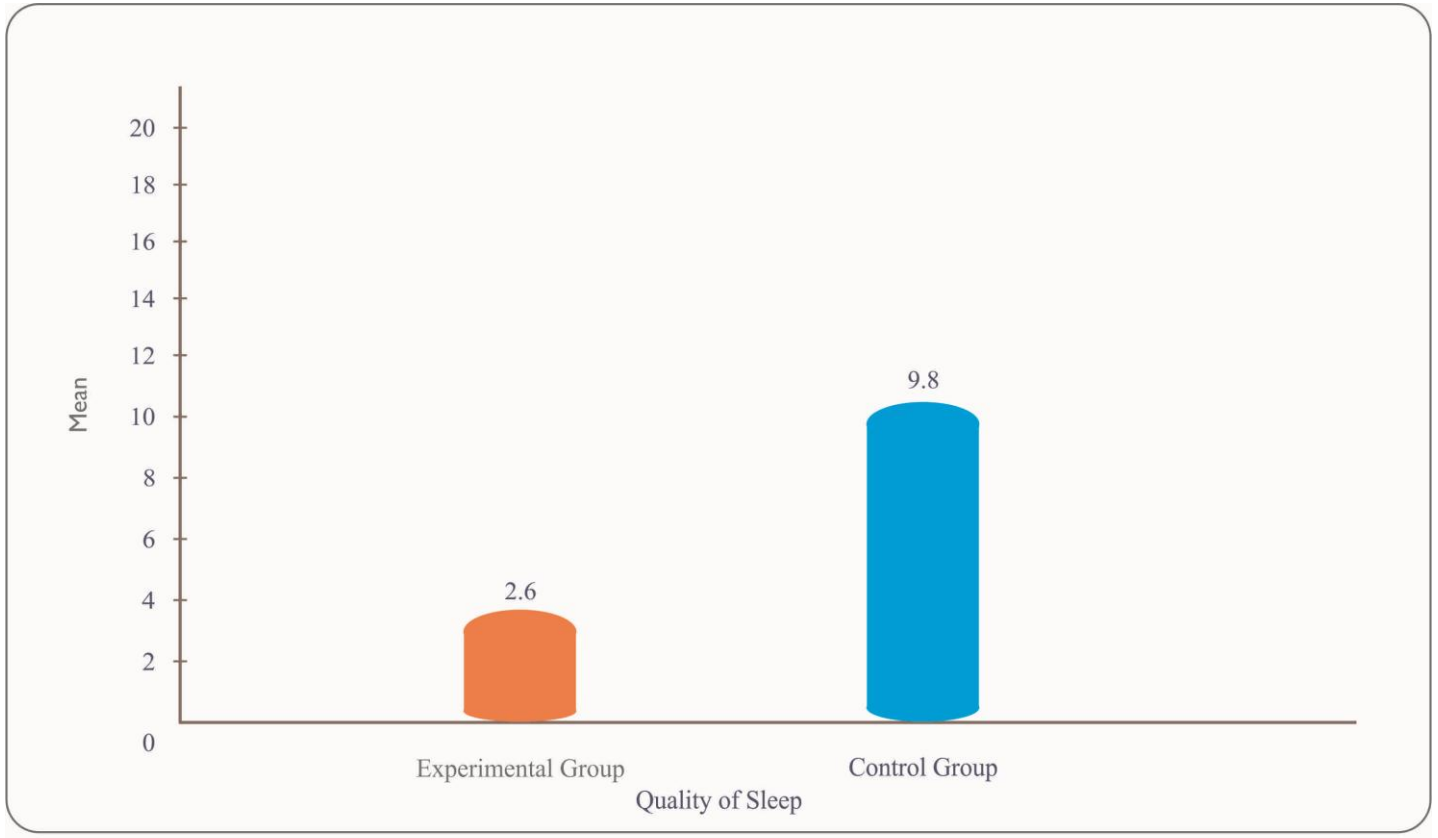

Fig 7 : Mean Post-test Value on Quality of Sleep among Orthopedic Surgical Patients in Experimental and Control Group.

SECTION 1V : DATA ON ASSOCIATION BETWEEN QUALITY OF SLEEP AMONG ORTHOPEDIC SURGICAL PATIENTS WITH THEIR SELECTED DEMOGRAPHIC VARIABLES

Table: 4.1

Frequency, Percentage and χ^2 Distribution on Quality of Sleep among Orthopedic Surgical Patients With Their Selected Demographic Variables in Experimental Group.

N=30

S. No.	Demographic Variable	Quality of Sleep						χ^2 Value
		Good		Fair		Poor		
		n	%	n	%	n	%	
1	Age (in years)							
	a. 20-30	4	13.3	1	3.3	0	0	7^{NS}
	b. 31-40	4	13.3	1	3.3	1	3.3	df=6
	c. 41-50	10	33.3	0	0	0	0	
	d. 51-60	9	30	0	0	0	0	
2	Gender							
	a. Male	12	40	0	0	0	0	2.2^{NS}
	b. Female	15	50	2	6.7	1	3.3	df=2
3	Education							
	a. No formal education	3	10	0	0	1	3.3	10.1^{NS}
	b. Primary education	10	33.4	0	0	0	0	df=8
	c. Secondary education	4	13.3	1	3.3	0	0	
	d. Higher secondary education	5	16.7	1	3.3	0	0	
	e. Collegiate/Equivalent	5	16.7	0	0	0	3.3	
4	Marital status							
	a. Unmarried	2	6.7	1	3.3	0	0	5.2^{NS}
	b. Married	20	66.7	1	3.3	0	0	df=6
	c. Widowed	3	10	0	0	0	0	
	d. Separated	2	6.7	0	0	1	3.3	

(Contd.,)

S. No.	Demographic Variable	Quality of Sleep						χ^2 Value
		Good		Fair		Poor		
		n	%	n	%	n	%	
5	Occupation							
	a. Government employee	3	10	1	3.3	0	0	1.5 NS
	b. Private employee	10	33.3	1	3.3	0	0	df=6
	c. Self employee	10	33.3	0	0	1	3.3	
	d. Unemployed	4	13.3	0	0	0	0	
6	Monthly income							
	a. ⩽Rs.5000	3	10	0	0	0	0	3.5 NS
	b. Rs 5001/-toRs10000/	12	40	1	3.3	1	3.3	df=6
	c. Rs 10001/- to Rs15000	8	26.7	0	0	0	0	
	d. > Rs 15000	4	13.3	1	3.3	0	0	
7	Area of living							
	a. Rural	18	60	1	3.3	1	3.3	0.8 NS
	b. Urban	9	30	1	3.3	0	0	df=2
8	Type of family							
	a. Nuclear family	15	50	1	3.3	1	3.3	1.3 NS
	b. Joint family	8	26.7	1	3.3	0	0	df=4
	c. Extended family	4	13.3	0	0	0	0	
9	Regular sleeping hours							
	a. Above 8 hrs	15	50	2	6.7	1	3.3	2.8 NS
	b. 5-7 hrs	10	33.3	0	0	0	0	df=4
	c. Below 5hrs	2	6.7	0	0	0	0	
10	Bread winner of the family							
	a. Patient	13	43.3	0	0	1	3.3	5.6 NS
	b. Husband/wife	8	26.7	2	6.7	0	0	df=6
	c. Son/daughter	5	16.7	0	0	0	0	
	d. More than one person	1	3.3	0	0	0	0	

(Contd.,)

S. No.	Demographic Variable	Quality of Sleep						χ^2 Value
		Good		Fair		Poor		
		n	%	n	%	n	%	
11	Type of surgery							
	a. Total Hip Replacement	9	30	0	0	1	3.3	3^{NS} df=4
	b. Total Knee Replacement	10	33.3	1	3.3	0	0	
	c. Arthroplasty	8	26.7	1	3.3	0	0	

NS – Non Significant

Table 4.1 envisages the substantive summary of chi square analysis which was used to bring out the relationship between the quality of sleep with their selected demographic variables in experimental group.

With regard to age, 4 (13.3%) had good quality of sleep 1 (3.3%) had fair quality of sleep in the category of 20-30 years. Among the category of 31-40 years, 4 (13.3%) had good quality of sleep, 1 (3.3%) had fair quality of sleep, 1 (3.3%) had poor quality of sleep. In the category of 41-50 years, all 10 (33.3%) had good quality of sleep. In the age group 51-60 ,9 (30%) had good quality of sleep. The obtained chi square value of 7 was not significant at $p < 0.05$ level and thus stated hypothesis is not supported. So it is inferred that there is no significant association between the age and quality of sleep among orthopedic surgical patients.

With regard to gender, among males all 12 (40%) had good quality of sleep among females 15 (50%) had good quality of sleep, 2 (6.7%) had fair quality of sleep,

1 (3.3%) had poor quality of sleep. The obtained chi square value of 2.2 was not significant at $p < 0.05$ level and thus stated research hypothesis is not supported. So it is inferred that there is no significant association between gender and quality of sleep among orthopedic surgical patients.

With regard to education, in the category of no formal education 3 (10%) had good quality of sleep, 1 (3.3%) had poor quality of sleep. In the category of primary education all 10 (33.3%) had good quality of sleep. In the category of secondary education 4 (13.3%) had good quality of sleep, 1 (3.3%) had fair quality of sleep. In the category of higher secondary education 5 (16.7%) had good quality of sleep. 1 (3.3%) had fair quality of sleep. In the category of college or equivalent 5(16.7%) had good quality of sleep, 1 (3.3%) had poor quality of sleep. The obtained chi square value of 10.1 was not significant at $p < 0.05$ level and thus the stated research hypothesis is not supported. So it is inferred that there is no significant association between the education and the quality of sleep among orthopedic surgical patients.

With regard to marital status, in the category of unmarried 2(6.7%) had good quality of sleep, 1 (3.3%) had fair quality of sleep. In the category of married 20 (66.7%) had good quality of sleep 1 (3.3%) had fair quality of sleep. In the category of widowed all 3 (10%) had good quality of sleep. In the category separated 2 (6.7%) had good quality of sleep, 1 (3.3%) had poor quality of sleep. The obtained chi square value of 5.2was not significant at $p < 0.05$ level and thus the stated research hypothesis is not supported. So inferred that there is no significant association between marital status and quality of sleep among orthopedic surgical patients.

With regard to occupation, in the category of government employee 3 (10%) had good quality of sleep, 1 (3.3%) had fair quality of sleep. In the category of private employee 10 (33.3%) had good quality of sleep, 1 (3.3%) had fair quality of sleep. In the category of self employee 10 (33.3%) had good quality of sleep, 1 (3.3%) had poor quality of sleep. In the category of unemployed 4 (13.3%) had good quality of sleep. The obtained chi square value of 1.5 was not significant at $p < 0.05$ level and thus the stated research hypothesis is not supported. It is inferred that there is no significant association between the occupation and quality of sleep among orthopedic surgical patients.

With regard to monthly income, in the category of less than Rs.5000/- all 3 (10%) had good quality of sleep. In the category of Rs.5000/- - Rs.10000/- 12 (40%) had good quality of sleep, 1 (3.3%) had fair quality of sleep, 1 (3.3%) had poor quality of sleep. In the category of Rs.10001/--Rs.150000/- all 8 (26.7%) had good quality of sleep. In the category of above Rs.15000/-, 4 (13.3%) had good quality of sleep, 1 (33.3%) had fair quality of sleep. The obtained chi square value of 3.5 was not significant at $p < 0.05$ level and thus the stated research hypothesis is not supported. So it is inferred that there is no significant association between the monthly income and quality of sleep among orthopedic surgical patients.

With regard to area of living, in the category of rural 18 (60%) had good quality of sleep, 1 (3.3%) had fair quality of sleep 1 (3.3%) had poor quality of sleep. In the category of urban 9 (30%) had good quality of sleep 1 (3.3%) had fair quality of sleep. The obtained chi square value of 0.75 was not significant at $p < 0.05$ level and thus the stated research hypothesis is not supported. So it is inferred that there is

no significant association between the area of living and quality of sleep among orthopedic surgical patients.

With regard to type of family, in the category of nuclear family 15 (50%) had good quality of sleep 1 (3.3%) had fair quality of sleep, 1 (3.3%) had poor quality of sleep. In the category of joint family 8 (21.7%) had good quality of sleep, 1 (3.3%) had fair quality of sleep. In the category of extended family all 4 (13.3%) had good quality of sleep. The obtained chi square value of 1.3 was not significant at $p < 0.05$ level and thus the stated research hypothesis is not supported. So it is inferred that there is no significant association between the type of family and quality of sleep among orthopedic surgical patients.

With regard to regular sleeping hours, in the category of above 8 hours 15 (50%) had good quality of sleep. 2 (6.7%) had fair quality of sleep 1 (3.3%) had poor quality of sleep. In the category of 5 hours all 10 (33.3%) had good quality of sleep. In the category of below 6 hours all 2 (6.7%) had good quality of sleep. The obtained chi square value of 2.8 was not significant at $p < 0.05$ level and thus the stated research hypothesis is not supported. So it is inferred that there is no significant association between the regular sleep hours and quality of sleep among orthopedic surgical patients.

With regard to bread winner of the family, in the category of patients 13 (43.3%) had good quality of sleep, 1 (3.3%) had poor quality of sleep. In the category of husband or wife 8 (26.7%) had good quality of sleep 2 (6.7%) had fair quality of sleep. Among the category of son or daughter all 5 (16.7%) had good

quality of sleep. In the category of more than one person 1 (3.3%) had good quality of sleep. The obtained chi square value of 5.6 was not significant at $p < 0.05$ level and thus the stated research hypothesis is not supported. So it is inferred that there is no significant association between the bread winner of the family and quality of sleep among orthopedic surgical patients.

With regard to type of surgery, in the category of hours 9 (30%) had good quality of sleep 1 (3.3%) had poor quality of sleep. In the category of 7 hours 10 (33.3%) had good quality of sleep, 1(3.3%) had fair quality of sleep. In the category of arthroscopy 8 (26.7%) had good quality of sleep, 1 (3.3%) had fair quality of sleep. The obtained chi square value of 3 was not significant at $p < 0.05$ level and hence the stated research hypothesis is not supported. So it is inferred that there is no significant association between the type of surgery and quality of sleep among orthopedic surgical patients.

It was inferred that, there is no significant association between quality of sleep among orthopedic surgical patients with their selected demographic variables in experimental group such as age, gender, education, marital status, occupation, monthly income, area of living, type of family, regular sleeping hours, bread winner of the family, type of surgery.

Table:4.2

Frequency, Percentage and χ^2 Distribution on Quality of Sleep among Orthopedic Surgical Patients With Their Selected Demographic Variables in Control Group.

N=30

S. No.	Demographic Variable	Quality of Sleep						χ^2 Value
		Good		Fair		Poor		
		n	%	n	%	n	%	
1	Age in years							
	a. 20-30	0	0	0	0	3	10	2.1 NS
	b. 31-40	0	0	4	13.3	5	20	df=6
	c. 41-50	1	3.3	4	13.3	5	16.7	
	d. 51-60	2	6.7	2	6.7	4	13.3	
2	Gender							
	a. Male	3	10	3	10	8	26.7	5 NS
	b. Female	0	0	7	23.3	9	30	df=2
3	Education							
	a. No formal education	1	3.3	2	6.7	1	3.3	5.3 NS
	b. Primary education	0	0	2	6.7	4	13.3	df=8
	c. Secondary education	1	3.3	1	3.3	2	6.7	
	d. Higher secondary education	1	3.3	2	6.7	3	10	
	e. Collegiate/Equivalent	0	0	3	10	7	23.3	
4	Marital status							
	a. Unmarried	0	0	0	0	2	6.7	3.1 NS
	b. Married	3	10	7	23.3	11	36.7	df=6
	c. Widow/widower	0	0	2	6.7	2	6.7	
	d. Separated	0	0	1	3.3	2	6.7	

(Contd.,)

S. No.	Demographic Variable	Quality of Sleep						χ^2 Value
		Good		Fair		Poor		
		n	%	n	%	n	%	
5	Occupation							
	a. Government employee	0	0	3	10	6	20	2.1^{NS} df=6
	b. Private employee	1	3.3	1	3.3	3	10	
	c. Self employee	1	3.3	3	10	5	16.7	
	d. Unemployed	1	3.3	3	10	3	10	
6	Monthly income							
	a. ≤Rs.5000/-	1	3.3	0	0	0	0	10.5^{NS}
	b. Rs 5001/-to 10000/-	1	3.3	4	13.3	5	16.7	df=6
	c. Rs 10001/- to Rs15000/-	1	3.3	3	10	5	16.7	
	d. > Rs 15000/-	0	0	3	10	7	23.7	
7	Area of living							
	a. Rural	0	0	2	6.7	8	26.7	3.7^{NS}
	b. Urban	3	10	8	26.7	9	30	df=2
8	Type of family							
	a. Nuclear family	2	6.7	4	13.3	7	23.3	3.2^{NS}
	b. Joint family	1	3.3	5	16.7	4	13.3	df=4
	c. Extended family	0	0	1	3.33	6	20	
9	Regular sleeping hours							
	a. Above 8 hrs	2	6.7	7	23.3	6	20	4.3^{NS}
	b. 5-7 hrs	0	0	2	6.7	6	20	df=4
	c. Below 5hrs	1	3.3	1	3.3	5	16.7	
10	Bread winner of the family							
	a. Patient	1	3.3	3	10	5	16.7	0.8^{NS}
	b. Husband/wife	1	3.3	4	13.3	5	16.7	df=6
	c. Son/daughter	1	3.3	2	6.7	5	16.7	
	d. More than one person	0	0	1	3.3	2	6.7	

(Contd.,)

S. No.	Demographic Variable	Quality of Sleep						χ^2 Value
		Good		Fair		Poor		
		n	%	n	%	n	%	
11	Type of surgery							
	a. Total Hip Replacement	2	6.7	3	10	5	16.7	2.3^{NS} df=4
	b. Total Knee Replacement	0	0	4	13.3	7	23.3	
	c. Arthroplasty	1	3.3	3	10	5	16.7	

NS- Non Significant

Table 4.2 envisages the substantive summary of chi square analysis which was used to bring out the relationship between the quality of sleep with their selected demographic variables in control group.

With regard to age, all 3 (10%) had poor quality of sleep in the category of 20-30 years. Among the category of 31-40 years 5 (16.7%) had poor quality of sleep, 4 (13.3%) had fair quality of sleep. In the category of 41-50 years, 1 (3.3%) had good quality of sleep,4(13.3%) had fair quality of sleep,5(16.7%)had poor quality of sleep. In the age group 51-60 1 (3.33%) had good quality of sleep, 2 (6.7%) had fair quality of sleep, 4 (13.3%)had poor quality of sleep. The obtained chi square value of 2 was not significant thus stated hypothesis is not supported. So it is inferred that there is no significant association between the age and quality of sleep among orthopedic surgical patients.

With regard to gender, among males 3 (10%) had good quality of sleep among females 3 (10%) had good quality of sleep, 8 (26.7%) had fair quality of sleep,

7 (23.3%) had fair quality of sleep 9 (30%) had poor quality of sleep. The obtained chi square value of 5 was not significant and thus stated research hypothesis is not supported. So it is inferred that there is no significant association between gender and quality of sleep among orthopedic surgical patients.

With regard to education, in the category of no formal education 1 (3.3%) had good quality of sleep, 2 (6.7%) had poor quality of sleep. In the category of primary education 1 (3.3%) had good quality of sleep. In the category of primary education 2 (6.7%) had good quality of sleep, 1 (3.3%) had fair quality of sleep. In the category of secondary education 1 (3.3%) had good quality of sleep. 1 (3.3%) had fair quality of sleep. In the category of higher secondary education 1(3.3%) had good quality of sleep, 2 (6.7%) had poor quality of sleep. In the category of collegiate or equivalent 3 (10%) had fair quality of sleep, 7 (23.3%) had poor quality of sleep. The obtained chi square value of 5.3 was not significant and thus the stated research hypothesis is not supported. So it is inferred that there is no significant association between the education and the quality of sleep among orthopedic surgical patients.

With regard to marital status, in the category of unmarried 2(6.7%) had poor quality of sleep, 1 (3.3%). In the category of married 3 (10%) had good quality of sleep 7 (23.3%) had fair quality of sleep, 11 (36.7%) had poor quality of sleep. In the category of widowed 2 (6.7%) had fair quality of sleep, 2 (6.7%) had poor quality of sleep. In the category separated 1 (3.3%) had fair quality of sleep, 2 (6.7%) had poor quality of sleep. The obtained chi square value of 3.06 was not significant and thus the stated research hypothesis is not supported. So inferred that there is no significant

association between marital status and quality of sleep among orthopedic surgical patients.

With regard to occupation, in the category of government employee 3 (10%) had good quality of sleep, 6 (20%) had fair quality of sleep. In the category of private employee 1 (3.3%) had good quality of sleep, 1 (3.3%) had fair quality of sleep. In the category of self employee 1 (3.3%) had good quality of sleep, 3 (10%) had fair quality of sleep, 5 (16.7%) had poor quality of sleep. In the category of unemployed 1 (3.3%) had good quality of sleep, 3 (10%) had fair quality of sleep, 3 (10%) had poor quality of sleep. The obtained chi square value of 2.1 was not significant and thus the stated research hypothesis is not supported. It is inferred that there is no significant association between the occupation and quality of sleep among orthopedic surgical patients.

With regard to monthly income, in the category of less than Rs.5000/-, 1 (3.3%) had good quality of sleep. In the category of Rs.5000/-- Rs.10000/- , 1 (3.3%) had good quality of sleep, 4 (13.3%) had fair quality of sleep, 5 (16.7%) had poor quality of sleep. In the category of Rs.10001/-Rs150000/- , 1 (3.3%) had good quality of sleep, 3(10%) had fair quality of sleep. In the category of above Rs.15000/- , 3 (10%) had fair quality of sleep, 7 (23.3%) had poor quality of sleep. The obtained chi square value of 10.5 was not significant and thus the stated research hypothesis is not supported. So it is inferred that there is no significant association between the monthly income and quality of sleep among orthopedic surgical patients.

With regard to area of living, in the category of rural 2 (6.7%) had fair quality of sleep, 8 (26.7%) had poor quality of sleep. In the category of urban 3 (10%) had good quality of sleep 8 (26.7%) had fair quality of sleep, 9 (30%) had poor quality of sleep. The obtained chi square value of 3.7 was not significant and thus the stated research hypothesis is not supported. So it is inferred that there is no significant association between the area of living and quality of sleep among orthopedic surgical patients.

With regard to type of family, in the category of nuclear family 2 (6.7%) had good quality of sleep 4 (13.3%) had fair quality of sleep, 7 (23.3%) had poor quality of sleep. In the category of joint family 1 (3.3%) had good quality of sleep, 5 (16.7%) had poor quality of sleep. In the category of extended family 1 (3.3%) had fair quality of sleep, 6 (20%) had poor quality of sleep. The obtained chi square value of 3.2 was not significant and thus the stated research hypothesis is not supported. So it is inferred that there is no significant association between the type of family and quality of sleep among orthopedic surgical patients.

With regard to regular sleeping hours, in the category of above 8 hours 15 (50%) had good quality of sleep. 2 (6.7%) had good quality of sleep 7 (23.3%) had fair quality of sleep, 6 (20%) had poor quality of sleep. In the category of 5 hours 2 (6.7%) had poor quality of sleep. In the category of below 6 hours 1 (3.3%) had good quality of sleep, 1 (3.3%) had fair quality of sleep, 5 (16.7%) had poor quality of sleep. The obtained chi square value of 4.3 was not significant and thus the stated research hypothesis is not supported. So it is inferred that there is no significant

association between the regular sleep hours and quality of sleep among orthopedic surgical patients.

With regard to bread winner of the family, in the category of patients 1 (3.3%) had good quality of sleep, 3 (10%) had good quality of sleep, 5 (16.7%) had poor quality of sleep. In the category of husband or wife 1 (3.3%) had good quality of sleep 2 (6.7%) had fair quality of sleep, 5 (16.7%) had poor quality of sleep. Among the category of son or daughter 1 (3.3%) had good quality of sleep, 2 (6.7%) had fair quality of sleep, 5 (16.7%) had poor quality of sleep. In the category of more than one person 1 (3.3%) had fair quality of sleep, 2 (6.7%) had poor quality of sleep. The obtained chi square value of 0.8 was not significant and thus the stated research hypothesis is not supported. So it is inferred that there is no significant association between the bread winner of the family and quality of sleep among orthopedic surgical patients.

With regard to type of surgery, in the category of hours 2 (6.7%) had good quality of sleep 3 (10%) had fair quality of sleep, 5 (16.7%) had poor quality of sleep. In the category of 7 hours 4 (13.3%) had good quality of sleep, 7 (23.3%) had poor quality of sleep. In the category of arthroscopy 1 (3.3%) had good quality of sleep, 3 (10%) had fair quality of sleep, 5 (16.7%) had poor quality of sleep. The obtained chi square value of 2.3 was not significant and hence the stated research hypothesis is not supported. So it is inferred that there is no significant association between the type of surgery and quality of sleep among orthopedic surgical patients.

It was inferred that, there is no significant association between quality of sleep among orthopedic surgical patients with their selected demographic variables in control group such as age, gender, education, marital status, occupation, monthly income, area of living, type of family, regular sleeping hours, bread winner of the family, type of surgery.

CHAPTER V

DISCUSSION

The basic aim of this study was to evaluate the effectiveness of Therapeutic Back Massage on Quality of Sleep among Orthopedic Surgical Patients in selected hospitals at Coimbatore.

The study was conducted by using a quasi experimental pre test post test design with control group, samples were selected from the unit of orthopedic surgical ward in Rex and Senthil hospital for conducting the study. The sample size was 60, among them 30 were in experimental group and 30 were in control group.

The structured self administered questionnaire was used to assess the demographic variables among orthopedic surgical patients. Quality of sleep was assessed by using standardized Groningen sleep quality scale. The responses were analyzed by using descriptive statistics (mean, frequency, percentage and standard deviation) and inferential statistics (paired't' test, independent't' test and chi square test). Discussions on the findings were arranged based on objectives of the study.

The first objective was to assess the quality of sleep among experimental and control group. The study revealed that among experimental group majority 27 (90%) had poor quality of sleep and 3 (10%) had fair quality of sleep during pre-test. Majority 27 (90%) experienced good quality of sleep, 2 (6.7%) had fair quality of sleep and 1(3.3%) experienced poor quality of sleep during post-test. Among control

group majority 28 (93.3%) experienced poor quality of sleep, 2 (6.7%) had fair quality of sleep during pre-test. Majority 17 (56.7%) experienced poor quality of sleep, 10 (33.3%) had fair quality of sleep, and 3(10%) had good quality of sleep during post-test. Hence the hypothesis 1 is accepted.

Mokhlesi.B, Hovd.MD, Vekhter.B, Arora.VM, Chung.F, Meltzer. DO.,(2013) conducted a cohort study to assess the sleep disorders among 1,058,710 hospitalized patients. The study revealed that sleep disorder was increasing in orthopedic surgeries than other groups. The study concluded that orthopedic surgical patients have sleep disturbances.

Foster.KA., Listein (2004) conducted a descriptive study in New Zealand on quality of life and quality of sleep among 150 orthopedic surgical patients by using quality of life index, sleep quality scale. The study revealed that orthopedic surgical patients have sleep disturbances. The study concluded that quality of life and quality of sleep is poor among orthopedic surgical patients.

The second objective of the study was to evaluate the effectiveness of therapeutic back massage on quality of sleep among experimental group. In experimental group, pre-test mean was 11.4 and standard deviation was 1.5. The post-test mean was 2.6 and the standard deviation was 2.5. The mean difference was 8.8. The obtained 't' value 15.7 was found to be significant at $p < 0.05$ level. Among control group, the pre-test mean value was 11.7 and the standard deviation was 1.7. During post-test the mean was 9.8 and the standard deviation was 3.3. The mean difference was 1.9. The obtained 't' value 3.3 was significant at $p < 0.05$ level.

Hence the hypothesis 2 was accepted. Therapeutic back massage is effective in improving the quality of sleep.

The study findings are supported by Richard KC., (2012) conducted an experimental study on effectiveness of back massage and relaxation intervention on sleep among 69 critically ill patients by adapting randomized control group design by using sleep efficiency index. The study revealed that back massage group slept one hour more than the relaxation group. The study concluded that massage therapy improves the quality of sleep.

Digeom., Delgado., (2011) conducted an experimental study in Europe on effectiveness of massage therapy in decreasing pain and a greater increase in grip strength as well as lower anxiety and depression among 46 adults with pain by adapting convenient sampling techniques by using anxiety scale, grip scale and sleep disturbance scale. The study revealed that the patients experienced lower level of anxiety, depression and improved sleep after massage therapy. The study concluded that massage therapy is effective in improving the grip strength and sleep.

The third objective of the study was to determine the association between post test quality of sleep among orthopedic surgical patients and their selected demographic variables (age, gender, education, marital status, occupation, monthly income, area of living , type of family, regular sleeping hours, bread winner of the family, type of surgery) in experimental and control group. There is no significant association between the quality of sleep with their selected demographic variables both in experimental and control group.

CHAPTER VI

SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter presents a brief account of the present study. It deals with the summary, conclusion and recommendations of the study. Conclusions are drawn from the findings and the implications of the results for nursing practice, nursing education, nursing research and nursing administration are stated.

Summary

The present study was to evaluate the Therapeutic Back Massage on quality of sleep among orthopedic surgical patients in selected hospitals at Coimbatore.

The objectives of the study were

- To assess the quality of sleep among experimental and control group.
- To evaluate the effectiveness of therapeutic back massage on quality of sleep among experimental group.
- To determine the association between post-test quality of sleep among orthopedic surgical patients with their selected demographic variables (age, gender, education, marital status, occupation, monthly income, area of living, type of family, regular sleeping hours, bread winner of the family, type of surgery) in experimental and control group.

A quasi experimental pre-test post-test design with control group was used to evaluate the effectiveness of therapeutic back massage on quality of sleep among orthopedic surgical patients.

A non probability purposive sampling technique was adapted to select samples with inclusion criteria. The sample size was 60 among them 30 were in experimental and 30 were in control group.

A structured self administered questionnaire was used for the study to evaluate the quality of sleep among orthopedic surgical patients.

It consisted of

PART I : Demographic variables (age, gender, education, marital status, occupation, monthly income, area of living, type of family, regular sleeping hours, bread winner of the family, type of surgery).

PART II : Standardized Groningen sleep quality scale to assess the quality of sleep among orthopedic surgical patients.

Data collection was done by using the self administered questionnaire. Pre-test was done on Day 1 followed by therapeutic back massage intervention on Day 1,2,3,4,&5 for a duration of 20 minutes once in the evening. The post test was done on Day 6.

Major Study Findings:

- Major study finding include orthopedic surgical patients with sleep disturbance belonged to the age group of 41-50 years, were females, had primary education, married, were self employee, earned a monthly income of Rs.5001/- to Rs.10000/- were living in rural and urban areas equally, living in nuclear family, had regular sleeping pattern of above 8 hours, were bread winner of the family, underwent total knee replacement surgery.
- Regarding quality of sleep during pre-test majority of patients had poor quality of sleep in both experimental and control group. During post-test among experimental group majority of patients had good quality of sleep and among the control group majority fall in the category of fair quality of sleep.
- With regard to effectiveness of therapeutic back massage on quality of sleep among orthopedic surgical patients, in experimental group the mean post-test score of quality of sleep was less than the mean pretest score. The obtained 't' value 15.7 was significant at $p < 0.05$ level. In control group, the mean post-test score of quality of sleep was less than the mean pretest score. The obtained 't' value 3.3 was significant at $p < 0.05$ level.
- With regard to the association between the quality of sleep with their selected demographic variables, the study findings had revealed that there was no significant association between the quality of sleep with their selected demographic variables both in experimental and control group.

Conclusion

The main conclusion drawn from the present study was that most of the orthopedic surgical patients had poor quality of sleep. After receiving therapeutic

back massage intervention there was a significant improvement in quality of sleep. Samples became familiar and found themselves comfortable and also expressed satisfaction. It is thus concluded the therapeutic back massage is effective and simple strategy to improve the quality of sleep.

Implications of the study

According to Tolsma (1995) the section of the research report that focuses on nursing implication usually includes specific suggestions for nursing practice, nursing education, nursing research ad nursing administration. Nursing implication for this study is enlisted below:

Nursing Practice

Clinical nurse can:

- learn accurate assessment of quality of sleep using standardized Groningen sleep quality scale.
- learn the techniques of therapeutic back massage.
- understand the importance of therapeutic back massage adjunct to the conventional medicine.
- encourage the care givers to use therapeutic back massage as a complementary therapy.
- recognize the findings of the current which can be a baseline for providing instructions to orthopedic surgical patients with poor quality of sleep.
- suggest this simple technique for preventing further complications among orthopedic surgical patient with quality of sleep.

Nursing Education

Nurse educators can motivate student to:

- learn accurate assessment of quality of sleep among orthopedic surgical patients by using Groningen Sleep Quality Scale.
- learn the techniques of Therapeutic Back Massage and its mechanism in promoting sleep.

Nursing Research

Nurse researcher can

- add to the research review about the importance of therapeutic back massage on quality of sleep among surgical patients.
- conduct further research in different setting using the above findings as a baseline data.
- disseminate the findings through journals and publications.

Nursing Administration

Nurse administrator can:

- organize in service education programmes for the nurses on this complementary technique.
- make cost effectiveness on the nursing care by reducing the usage of sedatives among orthopedic surgical patients.

Recommendations

- The same study can be conducted in different settings such as hospitals and community.
- The study can be replicated in large sample size.
- Effectiveness of this technique can be compared with other complementary therapies to find its effectiveness.
- The same study can be conducted in pediatrics and old age people.
- The same study can be conducted as a longitudinal study.
- The same study can be conducted with Solomon four group, time series, one group pre test-post test design.

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APPENDIX A

LETTER REQUESTING EXPERTS OPINION FOR CONTENT VALIDITY OF THE TOOLS AND INTERVENTION

ANNAI MEENAKSHI COLLEGE OF NURSING

Affiliated with the Tamil Nadu Dr. M.G.R Medical University, Chennai.
Approved by the Indian Nursing Council, New Delhi &
Tamil Nadu Nurses and Midwives Council, Chennai.

Madukkarai Market Road,
P.B. No. 4431
Industrial Estate Post,
COIMBATORE - 641 021.

Phone : 0422 - 2675641, 2672705
Fax : 0422 - 2676016
Email : ceandct@dataone.in
ceandct@gmail.com
Website: www.annaimeenakshi.in

Ref. No.

Date : .....

Requisition for Content Validity

From

Ms. Jacklin.P
II - Year M.Sc(N)
Annai Meenakshi College of Nursing,
Coimbatore – 21.

Through

The Principal,
Annai Meenakshi College of Nursing,
Coimbatore – 21.

To

Respected Sir,

Sub: Requisition for expert opinion and suggestion for content validity of the tools – Reg.

I am a student of M.Sc., Nursing II year of Annai Meenakshi College of Nursing, Coimbatore, affiliated to The Tamil Nadu Dr. M.G.R. Medical University, Chennai. As a partial fulfillment of the M.Sc., Nursing programme. I am conducting **"A Study To Evaluate The Effectiveness of therapeutic back massage on quality of sleep among orthopedic surgical patients in selected hospital at Coimbatore"**. I am hereby enclosing the following:

1. Statement and objectives of the study
2. Hypothesis
3. Methodology
4. Tool
5. Intervention
6. Content Validity certificate.

I Kindly request your guidance and valuable suggestions on the content submitted with this. It would be helpful for me to proceed my dissertation.

Thanking you,

Yours faithfully,

PRINCIPAL
Annai Meenakshi College of Nursing
COIMBATORE-641 021.

Place: Coimbatore
Date:

APPENDIX B

CERTIFICATE OF VALIDATION

ANNAI MEENAKSHI COLLEGE OF NURSING

Affiliated with the Tamil Nadu Dr. M.G.R Medical University, Chennai.
Approved by the Indian Nursing Council, New Delhi &
Tamil Nadu Nurses and Midwives Council, Chennai.

Madukkarai Market Road,
P.B. No. 4431
Industrial Estate Post,
COIMBATORE - 641 021.

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Fax : 0422 - 2676016
Email : ceandct@dataone.in
ceandct@gmail.com
Website: www.annaimeenakshi.in

Ref. No.

Date : .....

Certificate of Validation

This is to certify that the tool submitted by **Ms. Jacklin.P.,** M.Sc (N) II - Year student of Annai Meenakshi College of Nursing, Coimbatore, Tamil Nadu (Affiliated to The Tamil Nadu Dr. M.G.R. Medical University, Chennai) is validated by undersigned and can proceed with this tool and conduct the dissertation entitled **"A Study To Evaluate The Effectiveness of therapeutic back massage on quality of sleep among orthopedic surgical patients in selected hospital at Coimbatore".**

Place: Coimbatore

Date:

APPENDIX – C

Name List of Experts who validated the Tool

Dr. MADHU SUDAN, M.B.D.(Ortho)D.N.B.,(Ortho),MNAMS

Managing Director,

Senthil Hospital,

Coimbatore.

Dr. S. MURUGADOSS M.B.B.S.

Managing Director,

Sree Reshmika Hospital,

Coimbatore.

PROF.DEBORA, M.Sc(N).,

Professor,

G.K.N.M Hospital Institute of Nursing,

Coimbatore.

PROF.NIRMALA, M.Sc(N).,

Professor,

Kongunadu College of Nursing,

Coimbatore.

PROF.SANTHIPRIYA M.Sc(N).,

Professor,

K.G. College of Nursing,

Coimbatore.

PROF.VIJI, M.Sc(N).,

Professor,

G.K.N.M College of Nursing,

Coimbatore.

Mrs.INDIRA, M.Sc(N).,

Professor,

Nightingale College of Nursing,

Coimbatore.

APPENDIX D

LETTER SEEKING AND GRANTING PERMISSION TO CONDUCT STUDY AT SENTHIL HOSPITAL, COIMBATORE

ANNAI MEENAKSHI COLLEGE OF NURSING

Affiliated with the Tamil Nadu Dr. M.G.R Medical University, Chennai.
Approved by the Indian Nursing Council, New Delhi &
Tamil Nadu Nurses and Midwives Council, Chennai.

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P.B. No. 4431
Industrial Estate Post,
COIMBATORE - 641 021.

Phone : 0422 - 2675641, 2672705
Fax : 0422 - 2676016
Email : ceandct@dataone.in
ceandct@gmail.com
Website: www.annaimeenakshi.in

Ref. No. Ref: AMC/108/2013

Date : June 4, 2013

To

The Dean
Senthil Hospital,
Coimbatore.

Respected Sir,

Ms.Jacklin.P., is a student of M.Sc., (Nursing) II year, student of Annai Meenakshi College of Nursing, Coimbatore. She is conducting a study to **"Evaluate the effectiveness of Therapeutic back Massage on Quality of sleep among orthopaedic surgical patients in a selected hospital at Coimbatore"**

This is for her research work to be submitted to the Tamil Nadu Dr. M.G.R. Medical University in Partial fulfillment of the university requirement for the award of M.Sc., (Nursing) Degree.

As a part of her study she would like to collect the data from clients with **orthopaedic surgery** of your esteemed Institution. Further details of the proposed project will be furnished by the student personally.

Kindly give her permission for the same reason. The norms, ethics and policies practiced by the college will be addressed by the student.

Thanking you,

Yours faithfully,

PRINCIPAL
Annai Meenakshi College of Nursing
COIMBATORE-641 021.

Dr. R. MADHU SUDAN
M.B.D. (Ortho), D.N.B., (Ortho), MNAMS
Managing Director
SENTHIL HOSPITAL
COIMBATORE - 641 002
24/9/13

APPENDIX D

LETTER SEEKING AND GRANTING PERMISSION TO CONDUCT STUDY AT REX HOSPITAL, COIMBATORE

ANNAI MEENAKSHI COLLEGE OF NURSING

Affiliated with the Tamil Nadu Dr. M.G.R Medical University, Chennai.
Approved by the Indian Nursing Council, New Delhi &
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Madukkarai Market Road,
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Phone : 0422 - 2675641, 2672705
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Email : ceandct@dataone.in
ceandct@gmail.com
Website: www.annaimeenakshi.in

Ref: AMC/108/2013

June 4, 2013

Ref. No.

Date : .....

To

The Dean,
Rex Hospital,
Coimbatore.

Respected Sir,

Ms.Jacklin.P., is a student of M.Sc., (Nursing) II year, student of Annai Meenakshi College of Nursing, Coimbatore. She is conducting a study to **"Evaluate the effectiveness of Therapeutic back Massage on Quality of sleep among orthopaedic surgical patients in a selected hospital at Coimbatore"**

This is for her research work to be submitted to the Tamil Nadu Dr. M.G.R. Medical University in Partial fulfillment of the university requirement for the award of M.Sc., (Nursing) Degree.

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Kindly give her permission for the same reason. The norms, ethics and policies practiced by the college will be addressed by the student.

Thanking you,

Yours faithfully,

PRINCIPAL
Annai Meenakshi College of Nursing
COIMBATORE-641 021.

REX ORTHO HOSPITAL
43, R.R. Lay-Out,
Poomarket Bus Stop,
Mettupalayam Road,
Coimbatore - 641 002.
Ph: 2 542 542, 2 542 543

APPENDIX E

CONSENT FORM

Respected Sir / Madam,

I am Jacklin. P I am doing my second year M.Sc., (N) in Annai Meenakshi College of Nursing. I am conducting a Research on "A study to evaluate the effectiveness of therapeutic back massage on quality of sleep among Orthopedic surgical patients". I request your co-operation to complete my research. I assure you that you won't get any harm due to this intervention.

I Mr. / Mrs. …… was explained about the effectiveness of Therapeutic back massage on quality of life among Orthopedic surgical patients by Ms. P. Jacklin. She explained me the benefits of this intervention. I agree with this intervention of Therapeutic back massage and this study project whole heartedly.

Yours faithfully,

Date :

Time :

பிற்சேர்க்கை F

ஒப்புதல் படிவம்

மதிப்பிற்குரியோரே,

வணக்கம். செல்வி. பி. ஜாக்லின் என்ற நான் அன்னை மீனாட்சி செவிலியர் கல்லூரியில் முதுநிலை மேற்படிப்பு இரண்டாம் ஆண்டு படித்து வருகிறேன். நான் முதுகு மசாஜ் சிகிச்சை, உறக்கத்தின் அளவை அதிகரிக்கும் என்பதைப் பற்றி ஆராய்ச்சி செய்யவுள்ளேன். இதற்காக நான் தங்களது முழு ஒத்துழைப்பை கேட்டுக்கொள்கிறேன். மேலும் இதனால் தங்களுக்கு எந்த ஒரு பாதிப்பும் ஏற்படாது என்பதை தெரிவித்துக் கொள்கிறேன்.

திரு. / திருமதி. .. .. என்கிற நான், செல்வி. பி. ஜாக்லின் அவர்களிடமிருந்து முதுகு மசாஜ் சிகிச்சை, உறக்கத்தின் அளவை அதிகரிக்கும் என்பதை பற்றியும் அதன் பயன்கள் பற்றியும் தெரிந்துகொண்டேன். இதனால் நான் முழு மனதுடன் இந்த ஆராய்ச்சியில் பங்குபெற ஒப்புதல் அளிக்கிறேன்.

இடம் : கையொப்பம்

நாள் :

APPENDIX G

Structured Questionnaire (English)

Demographic Variables

(Questionnaire to assess the demographic variables of Orthopaedic Surgical Patient)

Sample no :

Date:

1. Age in years
   a. 20-30 years ( )
   b. 31-40 years ( )
   c. 41-50 years ( )
   d. 51-60 years ( )

2. Gender
   a. Male ( )
   b. Female ( )

3.Education

   a. No formal education ( )
   b. Primary education ( )
   c. Secondary education ( )
   d. Higher secondary education ( )
   e. Collegiate/equivalent ( )

4.Marital status

   a. Unmarried ( )
   b. Married ( )
   c. Widowed ( )
   d. Separated ( )

5.Occupation

a. Government employee ( )
b. Private employee ( )
c. Self employee ( )
d. Unemployee ( )

6.Monthly income

a. ⩽ Rs. 5000/- ( )
b. Rs. 5001 – Rs. 10000/- ( )
c. Rs. 10001 – Rs. 15000/- ( )
d. > Rs. 15000/- ( )

7. Bread winner of the family

a. Patient ( )
b. Spouse ( )
c. Son (or) daughter ( )
d. More than one Person ( )

8. Area of living

a. Rural ( )
b. Urban ( )

9. Type of family

a. Nuclear family ( )
b. Joint family ( )
c. Extended family ( )

10. Regular sleeping hours

a. Above 8 Hrs ( )

b. 5 – 7 Hrs ( )

c. Below 5 Hrs ( )

11. Bread winner of the family

a. Patient ( )

b. Husband / Wife ( )

c. Son / Daughter ( )

d. More than one person ( )

12. Type of surgery

a. Total Hip Replacement ( )

b. Total Knee Replacement ( )

c. Arthroplasty ( )

SECTION – B

STANDARDISED GRONINGEN SLEEP QUALITY SCALE

Instructions: Please put tick mark in the appropriate column.

SL.NO	CONTENT	TRUE	FALSE
1	I had a deep sleep Last Night		
2	I feel that I slept poorly last Night		
3	It took me more than half an hour to fall asleep last night		
4	I woke up several times last night		
5	I felt tired after waking up this morning		
6	I feel that I didn't get enough sleep last night		
7	I got up in the middle of the night		
8	I felt rested after waking up this morning		
9	I feel that I only had a couple of hour's sleep last night		
10	I feel that I slept well last night		
11	I didn't sleep a wink last night		
12	I didn't have trouble falling asleep last night		
13	After I woke up last night, I had trouble falling asleep again.		
14	I tossed and turned all night last night.		
15	I didn't get more than 5 hours sleep last night		

பிற்சேர்க்கை H

பகுதி I

மேற்கண்ட நோயாளிகளின் எலும்பு அறுவை சிகிச்சை பற்றிய கேள்வித் தொகுப்பு.

பின்வருவனவற்றை நன்றாக படித்து சரியான விடையில் (**√**) குறியிடவும்.

மாதிரி எண் :

தேதி :

1. வயது (வருடத்தில்)

அ) 20–30 ( )

ஆ) 31–40 ( )

இ) 41–50 ( )

ஈ) 51–60 ( )

2. பாலினம்

அ) ஆண் ( )

ஆ) பெண் ( )

3. கல்வித்தகுதி

அ) படிப்பறிவில்லாதவர் ( )

ஆ) ஆரம்பநிலைக் கல்வி ( )

இ) உயர்நிலைக் கல்வி ( )

ஈ) மேல்நிலைக் கல்வி ( )

உ) பட்டப்படிப்பு / அதற்கு நிகரான படிப்பு ( )

4. திருமண நிலை

அ) திருமணமாகாதவர் ( )

ஆ) திருமணமா னவர் ( )

இ) கணவன் / மனைவியை இழந்தவர் ( )

ஈ) விவாகரத்துப் பெற்றவர் / பிரிந்து வாழ்பவர் ( )

5. தொழில் வகை

அ) அரசு வேலை ( )

ஆ) தனியார் வேலை ( )

இ) சுயதொழில் செய்பவர் ( )

ஈ) வேலையில்லாதவர் ( )

6. மாத வருமானம்

அ) ரூ.5000/-க்கும் குறைவாக ( )

ஆ) ரூ.5001/- – ரூ.10000/- ( )

இ) ரூ.10,001/- – ரூ.15,000/- ( )

ஈ) Ž .15,000/-க்கும்மேல் ( )

7. இருப்பிடம்

அ) கிராமம் ( )

ஆ) நகரம் ( )

8. குடும்ப வகை

அ) கூட்டுக்குடும்பம் ( )

ஆ) தனிக்குடும்பம் ( )

இ) விரிவுபட்ட குடும்பம் ( )

9. வழக்கமாக உறங்குவதற்கு ஆகும் நேரம்

அ) 8 மணிநேரத்திற்கும் அதிகமாக ( )

ஆ) 5–7 மணி நேரம் ( )

இ) 6 மணி நேரத்திற்கும் குறைவாக ( )

10. குடும்பத்திற்கு வருமானம் ஈட்டும் நபர்

அ) நோயாளி ( )

ஆ) கணவன் (அ) மனைவி ( )

இ) மகன் (அ) மகள் ( )

ஈ) ஒன்றுக்கு மேற்பட்ட நபர்கள் ( )

11. அறுவை சிகிச்சையின் வகை .. ..

அ) மொத்த இடுப்பு மாற்று அறுவை சிகிச்சை ( )

ஆ) மொத்த முழங்கால் மாற்று அறுவை சிகிச்சை ( )

இ) ஆர்த்தோபிளாஸ்டி ( )

பகுதி ஆ

கிரானிங்கன் தூக்கத்திற்கு மதிப்புநிலை அளவுகோல்

நீங்கள் தற்போது எப்படி உணருகிறீர்கள் என்பதை நன்றாக

வாசித்தபின் சரியான விடையில் (**V**) குறியிடவும்.

வ. எண்.	குறிப்புகள்	சரி	தவறு
1	நான் நேற்று இரவு ஆழ்ந்து உறங்கினேன்.		
2	நான் நேற்று இரவு நன்றாக உறங்கவில்லை என்று உணருகிறேன்.		
3	நேற்று இரவு நான் படுக்கைக்கு சென்றபின் உறங்குவதற்கு அரை மணி நேரம் ஆனது.		
4	நான் நேற்று இரவு பல முறை விழித்தெழுந்தேன்.		
5	நான் இன்று காலை உறக்கத்தில் இருந்து களைப்புடன் எழுந்ததாக உணர்ந்தேன்.		
6	நான் நேற்று இரவு போதுமான அளவு உறங்கவில்லை என உணருகிறேன்.		
7	நேற்று நான் நள்ளிரவு உறக்கத்திலிருந்து எழுந்துவிட்டேன்.		
8	நான் காலையில் எழுந்தவுடன் ஓய்வாக இருந்தது போல் உணர்ந்தேன்.		
9	நான் நேற்று இரவு சில மணி நேரமே உறங்கியதாக உணருகிறேன்.		
10	நான் நேற்று இரவு நன்றாக உறங்கியதாக உணருகிறேன்.		
11	நான் நேற்று இரவு கண் சிமிட்டும் நேரம் கூட உறங்கவில்லை.		
12	எனக்கு நேற்றைய இரவு உறக்கம் வருவதில் பிரச்சினை இல்லை.		
13	நான் நேற்று இரவு உறக்கத்தின் இடையில் எழுந்தவுடன் மறுபடியும் உறங்கவதற்கு சிரமப்பட்டேன்.		
14	நான் நேற்று இரவு உறங்காமல் புரண்டுகொண்டே இருந்தேன்.		
15	நான் நேற்று இரவு 5 மணி நேரத்திற்கும் அதிகமாக உறங்கவில்லை.		

APPENDIX I

SCORING KEY

ANSWER KEY FOR ASSESS THE QUALITY OF SLEEP

QUESTION NUMBERS	TRUE	FALSE
1	0	0
2	1	0
3	1	0
4	1	0
5	1	0
6	1	0
7	1	0
8	0	1
9	1	0
10	0	1
11	1	0
12	0	1
13	1	0
14	1	0
15	1	0

Quality of Sleep	Score
Good Sleep	0-5
Fair Sleep	6-9
Poor Sleep	10-14

APPENDIX J

THERAPEUTIC BACK MASSAGE

INTRODUCTION

Therapeutic massage involves specific pressure and or manipulation of the soft tissue structures of the body. Swedish massage is characterized by the use of five basic stroke techniques. Efflurage, petrissage, friction, tapotment 20 minutes once in evening for 5 consecutive days.

DEFINITION

Therapeutic massage refers to the massage therapy which involves soft, long, kneading strokes as work as light rhythmic tapping strokes on topmost layers of muscle.

PURPOSE

- To improve sleep
- To bring about relaxation of muscles
- To relieve fatigue.
- To relief the stress.
- To alleviate the pain.
- To improve circulation and thus aiding in the prevention of besore.
- To stimulate the production of endorphine and provide relaxation

INDICATIONS OF THERAPEUTIC BACK MASSAGE

- After major surgery on lower limb and hip when the patient is anticipated to remain in the bed for a long period.
- It relaxes muscle and improve range of motion.

CONTRA INDICATIONS FOR A THERAPEUTIC BACK MASSAGE

- Skin disorders line eczema.
- Malignant tumours of the skin.
- Clients with open wounds, open skin lesions (or) bruising of the back.
- Client with inflamed skin, non blanchable erythema.
- Clients with trauma or fracture of ribs.
- Clients with spinal surgeries.

ARTICLES

S.NO.	ARTICLES	PURPOSES
	Clean tray containing	
1	Bath Blanket (1)	To cover the client.
2	Basin with hot water (60^0C)	To make the patient warm before massage.
3	Wash cloth (2)	To clean the skin surface.
4	Towel (1)	Dry the skin.
5	Mackintosh (1)	To avoid soiling of the linen.
6	Gloves (2 pairs)	To prevent cross infection.
7	Talcum Powder (1)	To provide thermal conduct.
8	Soapdish with soap (1)	To clean the skin.
9	Screen	To provide privacy.

PROCEDURE

S.NO.	STEPS	RATIONALE
1	Perform hand hygiene and wear gloves.	To prevent spread of infection.
2	Assemble all equipments required.	Organization facilitates accurate skill performance.
3	Check the clients identification and condition.	To assess sufficient condition on the client.
4	Explain to the client about the purpose and the procedure.	Providing information fosters co-operation.
5	Screen the patient.	To protect the clients privacy.
6	Placing the appropriate position. 1) Move the client to prone or sitting position. 2) Turn the client to her / his side and spread the mackintosh under the client's body.	To make him / her comfortable and provide the care easily. To avoid soiling of the linen.
7	Expose the client's back fully and observe it.	To find out abnormalities.
8	Wipe back thoroughly with wash cloth and apply soap from neck to sacrum.	To make clean the back before massage.

S.NO.	STEPS	RATIONALE
9	Wipe with other wash cloth and dry thoroughly.	To dry the skin.
10	Apply talcum powder to both hands.	To provide thermal conduct.
11	Begin massage with effleurage stroking with both the hands from the gluteal region towards the shoulder and vise versa with circular strokes continue this for 10 minutes.	To increase the circulation.
12	Begin technique of petrissage (kneading the muscles of the body to attain deeper massage penetration) by using the thumbs and the knuckles of the fingers to squeeze them from the gluteal region towards the shoulder continue this technique for 3 minutes.	To increase the relaxation effect.
13	Continue the technique of tapotment with the use of fist of cupped hands from the gluteal region towards the shoulder and vice versa for 2 minutes.	To stimulate circulation.

14	Perform the technique of friction using the palms of hands from the gluteal region towards the shoulder and continue for 5 minutes.	To increase the circulation.
14	Remove the blanket and replace the clients gown and bed covers.	To tidy the bedside environment.
15	Place the client in a comfortable position.	To leave the client comfortable.
16	Wash hands.	To limit transfer of micro organisms.

AFTER CARE

- Make the patient comfortable.
- Remove screen and equipment.
- Clean articles with soap and water keep ready for next use.

DATA COLLECTION

THERAPEUTIC BACK MASSAGE